

PRIONOSPIO AND *PARAPRIONOSPIO* (POLYCHAETA: SPIONIDAE) FROM SOUTHERN AUSTRALIA

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Abstract

Wilson, R.S., 1990. *Prionospio* and *Paraprionospio* (Polychaeta: Spionidae) from southern Australia. *Memoirs of the Museum of Victoria* 50(2): 243–274.

Eight new species of *Prionospio* are described from southern Australia: *P. coorilla*, *P. kirrae*, *P. kulin*, *P. nirripa*, *P. pilkena*, *P. tatura*, *P. wambiri* and *P. yuriel*. *Prionospio steenstrupi* Malmgren is removed from the Australian fauna and *P. dubia* Day is recorded from Australia for the first time. A key is provided to all species of *Prionospio* known from southern Australia. The type species of *Paraprionospio* Caullery, *P. pinnata* (Ehlers) is redescribed from the type material and a lectotype designated. All Australian records of *Paraprionospio pinnata* are referred to a new species, *P. coora*. The distribution of species of the *Prionospio* complex in south-eastern Australia is discussed and a distinct fauna is shown to be present on the continental shelf.

Introduction

During the years 1979–1983 the Museum of Victoria made a survey of the soft bottom benthos of Bass Strait (Wilson and Poore, 1987). In 1984 and 1985 additional collections were made from the continental shelf and coastal bays around Tasmania and further specimens have come to hand from inshore habitats in south-western Western Australia. This paper reports on the dominant group of spionid polychaetes from these collections, the *Prionospio* complex of genera.

Material and methods

Sources for material examined in this study are as follows. Stations occupied during the Bass Strait Survey are numbered in 2 series: BSS and S05/84 are the prefixes used and full data for these stations was given by Wilson and Poore (1987). PPBES prefixes refer to Port Phillip Bay Environmental Study stations (Poore, 1986), and TAS station numbers refer to inshore collections from Tasmania, full locality details for which are given in the Appendix. Station numbers prefixed by HT refer to the list of localities given by Hutchings and Turvey (1984: Table 1). Width measurements given in the species descriptions refer to the post-branchial body width (excluding parapodia, at about setiger 10) measured with an eyepiece scale on a stereomicroscope. Width measurements are used for selecting maximum and minimum size specimens among the material examined.

Materials examined here are deposited in the following institutions: Australian Museum, Sydney (AM); British Museum (Natural History), London (BMNH); National Museum of Wales, Cardiff (NMW); Museum of Victoria, Melbourne (NMV); Tasmanian Museum, Hobart (TM); United States National Museum, Smithsonian Institution, Washington (USNM).

I have given new species names derived from Australian aboriginal words; all are to be treated as indeclinable. Species are treated in alphabetical order within each genus.

Systematics

The *Prionospio* complex comprises a group of genera which have historically been treated together. The form of the prostomium, peristomium, anterior parapodia and branchiae (which are concentrated on anterior segments) are broadly similar throughout the complex, however there is no character which could define the *Prionospio* complex as a monophyletic taxon within the Spionidae. Most keys distinguish *Prionospio* complex genera by the absence of character states present in other genera (e.g. Blake and Kudenov, 1978; Fauchald, 1977). Within the *Prionospio* complex, genera are distinguished on the basis of the degree of fusion of setiger 1 with the peristomium, the form and arrangement of branchiae, and the form of the pygidium and anal cirri (Table 1).

Blake and Kudenov (1978) included *Paraprionospio* Caullery, 1914, *Orthoprionospio*

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Table 1. Comparison of characters in *Prionospio* and related genera.

Genus [source of data]	Peristomium	Setiger 1	Branchiae	Dorsal ridges or collars	Hooded hooks	Pygidium
<i>Apoprionospio</i> [Maciolek, 1985]	reduced, lateral wings absent	reduced, fused to peristomium	commence setiger 2, 4 pairs: 1-3 apinnate, 4 pinnate with plate-like pinnules	absent or with dorsal crest on setiger 7	present in notopodia and neuropodia, secondary hood small	1 long dorsomedial cirrus and 2 lateral lappets
<i>Aurospio</i> [Maciolek, 1981a]	reduced, lateral wings absent	reduced, fused to peristomium	commence setiger 3, 2 pairs, both apinnate, partly fused to notopodial lamellae	absent	present in notopodia and neuropodia, secondary hood absent	1 long dorsomedial cirrus and 2 lateral lappets
<i>Laubierellus</i> [Maciolek, 1981b]	reduced, without lateral wings	reduced, partly fused to peristomium	commence setiger 2, 4 pairs, all apinnate	absent	present in neuropodia only, secondary hood small	1 short dorsomedial cirrus and 2 lateral lappets
<i>Orthoprionospio</i> [Blake & Kudenov, 1978]	enlarged, with moderate wings	well-developed, free from peristomium	commence setiger 1, 18-22 pairs, all apinnate	absent	present in notopodia and neuropodia, secondary hood absent	1 ventral lobe and 4 small lateral papillae
<i>Paraprionospio</i> [Yokoyama & Tamai, 1981; this paper]	enlarged, with prominent wings	well-developed, free from peristomium	commence setiger 1, 3 pairs, all pinnate, with plate-like pinnules	prominent ridge across setiger 1	present in notopodia and neuropodia, with conspicuous secondary hood	1 long dorsomedial cirrus and usually 2 short lateral lappets
<i>Prionospio</i> [Maciolek, 1985; this paper]	reduced, with or without lateral wings	reduced, fused to peristomium	commence setiger 2 or 3, 3-40 pairs, apinnate or with digitiform pinnae, or both	membranous dorsal crests may be post-branchial setigers	present in notopodia and neuropodia, secondary hood small	1 long dorsomedial cirrus and 2 lateral lappets
<i>Streblospio</i> [Blake & Kudenov, 1978]	enlarged, with low lateral wings	reduced, fused to peristomium	1 pair only, on setiger 1, apinnate	low ridge across setiger 1, prominent collar across setiger 2	present in notopodia and neuropodia, secondary hood conspicuous	2 rounded lobes, appendages absent

Blake and Kudenov, 1978, *Streblospio* Webster, 1879 and *Prionospio* Malmgren, 1867 in the *Prionospio* complex with *Aquilaspio* Foster, 1971, *Minuspio* Foster, 1971 and *Prionospio sensu stricto* being treated as subgenera of *Prionospio sensu lato*. Maciolek (1981a, b) added 2 new genera, *Aurospio* and *Laubiieriellus*, to the complex to accommodate species from deep water in the north and south Atlantic Ocean. A recent revision by Maciolek (1985) accepted Blake and Kudenov's arrangement of genera and subgenera but resurrected and redefined *Apo-prionospio* Foster, 1971. *Aquilaspio*, *Minuspio* and *Prionospio sensu stricto* as used by Maciolek are artificial groupings of species (Maciolek, 1985) and I have therefore preferred to dispense with subgenera. All taxa elsewhere treated as species of *Aquilaspio* and *Minuspio* are here referred to *Prionospio*. Maciolek's (1985) arrangement of subgenera can however be recognised in the artificial key to Australian species of *Prionospio* provided below.

Three genera, *Prionospio*, *Paraprionospio* and *Orthoprionospio*, are known to occur in Australia and can be distinguished using the characters given in Table 1. *Orthoprionospio* contains a single species, *O. cirriformia* Blake and Kudenov, 1978, which occurs in areas of reduced salinity and was not encountered in this study. Australian material of the remaining 2 genera is treated below.

Discussion

Numerous extensive benthic collections from southern and south-eastern Australia have now provided material for taxonomic study (Poore et al., 1975; Blake and Kudenov, 1978; Hutchings and Turvey, 1984; Poore, 1986; Wilson and Poore, 1987; appendix to this paper), and the taxonomy and species distribution patterns of the *Prionospio* complex in southern, and especially south-eastern Australia, must now be considered moderately well known. In the absence of a phylogenetic classification of the *Prionospio* complex it is not possible to attempt a biogeographic analysis, but a summary of the diversity and degree of endemism of the southern Australian fauna is useful. (The following discussion is restricted to Australian waters south of 26°S; northern waters remain poorly known.)

Of the 20 species in the *Prionospio* complex now known from southern Australia, 17 are endemic; only *Prionospio aucklandica* Augener, 1923 (known also from New Zealand), *P. dubia* Day, 1961 (also from South Africa) and *P.*

ehlersi Fauvel, 1928 (also from the Mediterranean, North Atlantic and Indo-Pacific) occur outside the region. Nine new species and one new record (*P. dubia*) are added to the Australian fauna in this paper. The additions result from the discovery of a distinct fauna on the continental shelf of Bass Strait (see below), and the resolution of several species complexes: Australian records of *P. steenstrupi* are assigned to *P. coorilla* sp. nov., *P. dubia*, *P. kulin* sp. nov. and *P. multicristata* Hutchings and Rainer, 1979, and the species is removed from the Australian fauna. Records of *Prionospio cirriformis* Wirén, 1883 from southern Australia have been referred to three new species (*P. tatura*, *P. wambiri* and *P. yuriei*), and records of *Paraprionospio pinnata* (Ehlers, 1901) from southern Australia are referred to *Paraprionospio coora* sp. nov. It is unlikely that either *Prionospio cirriformis* or *Paraprionospio pinnata* occur in Australia.

There are distinct differences between the faunas of the continental shelf and inshore waters (including the major embayments of Port Phillip Bay and Western Port in south-eastern Australia). Six species (*Orthoprionospio cirriformis* Blake and Kudenov, 1978, *Prionospio aucklandica*, *P. multipinnulata* Blake and Kudenov, 1978, *P. paucipinnulata* Blake and Kudenov, 1978, *P. tatura* and *P. yuriei*) occur only in inshore waters and are most common in shallow muddy sediments or in seagrass communities in Port Phillip Bay and Western Port. *Orthoprionospio cirriformis* and *P. tatura* are restricted to estuarine conditions. No species in the *Prionospio* complex occurs in the deep muddy basin of Port Phillip Bay or near the entrance. Outside the bays, a distinct fauna is present: live species (*Prionospio dubia*, *P. kulin* sp. nov., *P. nirripa* sp. nov., *P. pilkena* sp. nov. and *Paraprionospio coora* sp. nov.) occur only on the continental shelf; most of these species are recorded from both muddy and well-sorted carbonate sediments. Of the 13 species now known from south-eastern Australia (Victoria and Tasmania, where both inshore and shelf communities have been well sampled) only two, *Prionospio kirrae* sp. nov. and *P. wambiri* sp. nov., occur widely in both inshore waters and on the continental shelf.

Prionospio Malmgren, 1867

Prionospio Malmgren, 1867: 201.
Aquilaspio Foster, 1971: 105-106.
Minuspio Foster, 1971: 106-107.

Diagnosis. Prostomium with anterior margin incised or rounded, without frontal horns,

caruncle variously developed. Peristomium fused in varying amounts with setiger 1 often forming low lateral wings. Branchiae pinnate, apinnate, or both pinnate and apinnate. Branchiae present on a series of consecutive anterior setigers commencing at setigers 2 or (rarely) 3. Between 3 and 13 pairs of branchiae usually present, or up to 39 pairs in one species: *P. polybranchiata* Fauvel, 1929. Anterior setae all capillaries, hooded hooks in posterior noto- and neuropodia; hooks bi- to multidentate, inferior sabre setae present in all species except *P. perkinsi* Maciolek, 1985. Pygidium with 1 long

medial cirrus and 2 short ventrolateral cirri or lappets.

Type species. Prionospio steenstrupi Malmgren, 1867, by monotypy.

Remarks. The above diagnosis is essentially that of Maciolek, 1985, except that the description of branchiae has been expanded slightly to include *P. ockelmanni* Pleijel, 1985, and *P. pilkena* sp. nov. The most recent major work is the revision by Maciolek (1985), which includes a redescription of the type species.

Key to species of *Prionospio* known from southern Australia (south of 26°S)

This key excludes 3 species recorded from north-western Australia by Hartmann-Schröder (1979, 1981): *Prionospio fallax* Söderström, 1920; *P. lanceolata* Hartmann-Schröder, 1979 and *Prionospio sexoculata* Augener, 1918.

1. Four pairs of branchiae, at least one pair of which have digitiform pinnae 2
- Three to 12 pairs of branchiae, all apinnate (branchiae may have fine lateral cilia; subgenus *Minuspio* sensu Maciolek, 1985) 15
2. Three or 4 pairs of branchiae, all with digitiform pinnae (subgenus *Aquilaspio* sensu Maciolek, 1985) 3
- Both pinnate and apinnate branchiae present (subgenus *Prionospio* sensu Maciolek, 1985) 5
3. Three pairs of pinnate branchiae on setigers 2–4 *P. aucklandica*
- Four pairs of pinnate branchiae on setigers 2–5 4
4. Neuropodial lamella of setiger 1 rounded in shape; neuropodial hooded hooks appear at setigers 17–22 *P. multipinnulata*
- Neuropodia of setiger 1 inflated, pyramidal in shape; neuropodial hooded hooks appear at setigers 8–12 *P. pyramidalis*^x
5. First 3 pairs of branchiae apinnate, fourth pair pinnate; hooded hooks with one pair of apical teeth 6
- Branchiae otherwise; hooded hooks with 4 or more pairs of apical teeth 7
6. Dorsal crest on setiger 7 *P. tridentata*^x
- Dorsal crest on setiger 11 *P. kirrae* sp. nov.
7. First pair of branchiae pinnate, second to fourth pairs apinnate; interparapodial pouches present from between setigers 2 and 3 *P. ehlersi*^x
- Either third or fourth pairs of branchiae pinnate; interparapodial pouches (if present) do not appear until at least setigers 8 and 9 8
8. First and third pairs of branchiae pinnate, second and fourth pairs apinnate; dorsal crests on setigers 7 and 8 only *P. paucipinnulata*^x
- First and fourth pairs of branchiae pinnate, second and third pairs apinnate; dorsal crest either completely absent or present on 6 or more setigers 9
9. Dorsal crests absent; neuropodial sabre setae first present at setigers 12–18 10
- Dorsal crests present; sabre setae appear at setigers 10–11 11
10. Sabre setae appear at setigers 12–14, usually 13 *P. coorilla* sp. nov.
- Sabre setae appear at setigers 15–20, usually 17–19 *P. dubia*

11. Sabre setae appear at setiger 11; dorsal crests present on setigers 11–18 *P. australiensis*^x
 — Sabre setae appear at setiger 10; dorsal crest present before setiger 11 12
12. Dorsal crests present setigers 7–20 at least 13
 — Dorsal crests otherwise 14
13. Dorsal crests present setigers 7–30; caruncle extends back to setiger 4 *P. multicristata*
 — Dorsal crests present setigers 7–20; caruncle extends back to setiger 2 *P. kulin* sp. nov.
14. Dorsal crests present on setiger 5 and setigers 9–13; notopodial hooded hooks present from setigers 35–40 *P. queenslandica*^x
 — Dorsal crests present setigers 10–30; notopodial hooded hooks appear setigers 22–36 *P. nirripa* sp. nov.
15. 3 pairs of apinnate branchiae present on setigers 3–6 *P. pilkena* sp. nov.
 — At least 6 pairs of apinnate branchiae commencing at setiger 2 ... 16
16. Prostomium narrow anteriorly, broadest posteriorly; longest branchiae (on setigers 3–5) 4–5 times notopodial length *P. yuriel* sp. nov.
 — Prostomium broadest at anterior margin or at median region; longest branchiae (on setiger 2) 2 times notopodial length 17
17. Sabre setae present from setigers 10–12, neuropodial hooded hooks present from setigers 13–15; neuropodia of setiger 2 without ventral projection *P. tatura* sp. nov.
 — Sabre setae present from setigers 14–16 (rarely setigers 11–12 in very small worms), neuropodial hooded hooks present from setigers 16–20 (rarely 14); neuropodia of setiger 2 with prominent ventral projection *P. wambiri* sp. nov.

^x denotes species not recorded in this study

Prionospio aucklandica Augener, 1923

Prionospio aucklandica Augener, 1923: 69.—Blake and Kudenov, 1978: 221–222, fig. 25b–g.

Aquilaspio aucklandica.—Hutchings and Turvey, 1984: 8–9.

Material examined. Western Australia: Nornalup, "sample 3", coll. J. Shaw, NMV F53897, 4 specimens.

Victoria: Port Phillip Bay, PPBES Stn 944, NMV G3097, 7 specimens.

New South Wales: Botany Bay, Towra Pt, New South Wales Fisheries Stn 335, NMV G3143, 7 specimens.

Remarks. The material examined here agrees closely with the detailed description of Hutchings and Turvey (1984). Sabre setae appear at setiger 10 in all specimens, neuropodial hooded hooks appear at setigers 18–19 in eastern Australian specimens and at setigers 19–22 in Western Australian specimens (all specimens of similar size range, from 0.3 to 0.45 mm post-branchial width, excluding parapodia). Notopodial hooded hooks also appear earlier in specimens from eastern Australia (setigers 27–30) than in Western Australian material (notopodial hooks from setigers 31–36).

Blake and Kudenov (1978) reported that a dorsal crest was present on setiger 7; re-examination of their material shows that this was an error and that no dorsal crests are present in *P. aucklandica*. Augener (1923) made no mention of dorsal crests and Hutchings and Turvey (1984) noted the absence of dorsal crests in their material. This is the first record of *P. aucklandica* from Western Australia.

Distribution. Southern Australia from southwestern Western Australia to Botany Bay, New South Wales.

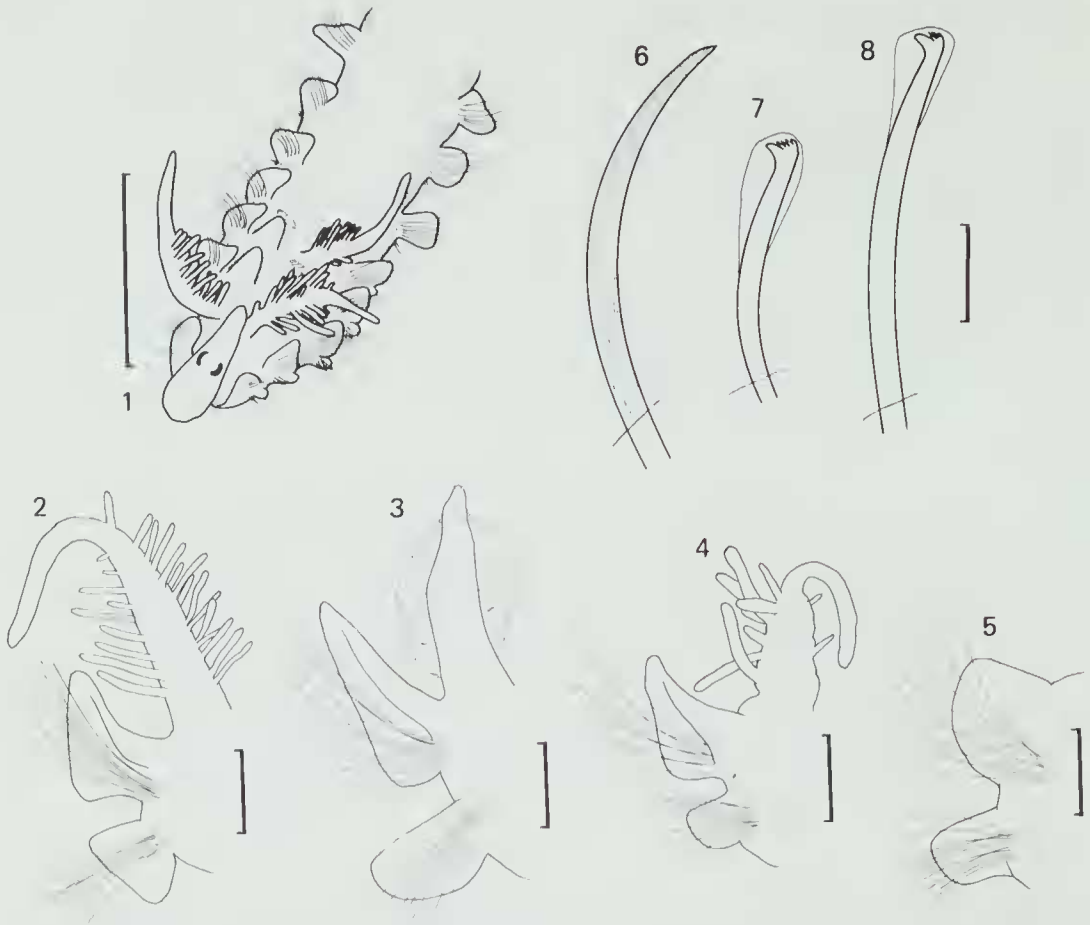
Prionospio coorilla sp. nov.

Figures 1–8

Prionospio sp. 5 Poore et al., 1975: 59.

Material examined. 67 specimens, size range 45 setigers, 10 mm long, 0.25 mm wide (entire specimen) to 21 setigers, 5 mm long, 0.5 mm wide (anterior fragment).

Holotype: entire specimen, 62 setigers, 10 mm long, 0.3 mm wide, NMV F52633. Central Bass Strait, 6 km SE of Stanley, Tasmania, 40°48.8'S, 145°22'E, 22 m, fine sand, Smith-McIntyre Grab, 4 Nov 1980, M. Gomon et al. (Stn BSS-G 114).



Figures 1–8. *Prionospio coorilla*: 1, dorsal view, holotype NMV F52633; 2–5, paratype NMV F52636: 2, setiger 2 parapodium; 3, setiger 4 parapodium; 4, setiger 5 parapodium; 5, setiger 9 parapodium; 6–8, holotype: 6, sabre seta, setiger 19; 7, neurosetal hooded hook, setiger 19. 8, notopodial hooded hook, posterior setiger, holotype.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 1); 0.1 mm (Figs 2–5); 0.02 mm (Figs 6–8).

Paratypes: Central Bass Strait, type locality: NMV F52634–52637, 4 paratypes. Central Bass Strait, 25 km S of Aireys Inlet, 38°44.6'S, 144°9.0'E, 77 m, fine sand, Smith-McIntyre Grab, 19 Nov 1981, R. Wilson et al. (Stn BSS-G 182) AM W203947, 3 paratypes; NMW.Z.1989.116.1, 4 paratypes; USNM 122745, 3 paratypes; NMV F52638–52639, 2 paratypes.

Other material: Southern Ocean: Stn S05/84/54, NMV F50447, 1 specimen.

Tasmania: Stn TAS 28, NMV F50474, 3 specimens.

Bass Strait: Stn BSS 49, NMV F52640, 1 specimen; Stn BSS-G 68, NMV F52641, 1; Stn BSS-G 112, NMV F50319, 14; Stn BSS-G 113, NMV F52642, 2; Stn BSS-S 115, NMV F52643, 3; Stn BSS-G 115, NMV F50320, 16; Stn BSS-G 117, NMV F52644, 7; Stn BSS-G 163, NMV F52645, 6; Stn BSS-G 165, NMV F52646, 2; Stn BSS-S 165, NMV F52647, 1; Stn BSS-G 181, 2; Stn BSS-G 184, NMV F52649, 1.

Victoria: Port Phillip Bay: PPBES Stn 938, NMV G3192, 1; PPBES Stn 946, NMV G3194, 1; PPBES Stn 965, NMV G3195, 1; PPBES Stn 978, NMV G3196, 1 (*Prionospio* sp. 5 of Poore et al., 1975; material identified as *P. steenstrupi* by Blake and Kudenov, but not published).

Description. Prostomium with rounded anterior margin, extending posteriorly as narrow caruncle to anterior margin of setiger 2 (Fig. 1). Nuchal organ present on either side of caruncle. Two pairs of red eyes, posterior pair larger, comma shaped; anterior pair much smaller and indistinct (or absent in some specimens). First setiger fused to peristomium, forming lateral wings which partially enclose prostomium. First setiger with noto- and neurosetae and reduced parapodial lobes. Four pairs of branchiae on

setigers 2–5. First pair of branchiae about 3–4 times as long as notopodial lobe, densely covered with long digitiform pinnae on posterior surfaces; bare on anterior surfaces and on extreme distal region. Branchiae 2 and 3 stout, triangular, about as long as notopodial lobes, apinnate but with strongly ciliated lateral margins. Fourth pair of branchiae about 1.5 to 2 times as long as branchiae 2 and 3, densely covered with long digitiform pinnae on posterior surface, bare anteriorly and distally. Notopodia asymmetrical triangular-lanceolate, largest on setigers 2–4, reducing to low rounded lobes by about setigers 12–15 and further reducing posteriorly. Neuropodia anteriorly asymmetrical ovoid lobes, largest and with small ventrally directed process on setiger 2, reducing posteriorly to low semicircular lobes similar to, but smaller than, notopodia by about setiger 20 (Figs 2–5). Dorsal crests and interparapodial pouches absent.

Setae anteriorly granulate capillaries, arranged in 3 rows in notopodia and 2 rows in neuropodia. Capillaries most common in anterior 15–18 setigers, thereafter losing granulations, becoming fewer and longer; capillaries of posterior setigers up to twice as long as body diameter. Sabre setae appear in ventral neuropodial positions at setigers 12–14, usually 13 (sabre setae from setiger 13 in holotype). Sabre setae number 1 or occasionally 2 per parapodium, granulated, sheath not visible (Fig. 6). Neuropodial hooded hooks, with 3–4 pairs of small teeth in 2 rows above the main fang (Fig. 7), appear at setigers 15–18 (setiger 18 in holotype). Hooded hooks usually number 5–6 per neuropodium. Notopodial hooded hooks, similar to neuropodial hooded hooks but with longer shafts (Fig. 8), one or 2 per notopodium, appear at setiger 50 in holotype, at setiger 42 in the only other specimen with notopodial hooks (paratype NMV F52634). Pygidium with a single short threadlike anal cirrus, lateral lobes absent.

Remarks. *Prionospio coorilla* is allied to *P. steenstrupi* and related species compared in Table 3 of Maciolek (1985: 375, species 1–12). Including *P. coorilla*, *P. kulin* sp. nov. and *P. nirripa* sp. nov. described here, 15 species are now included in this group. *Prionospio coorilla* is most similar to *P. dubia* from southern Africa and Bass Strait (see description below) but can be readily distinguished on the basis of the earlier appearance of neuropodial sabre setae and hooded hooks in *P. coorilla*. *Prionospio coorilla* also has a narrower prostomium.

Etymology. The specific name *coorilla* is derived from an Australian aboriginal word meaning "south".

Distribution. South-eastern Australia, from the continental shelf of Bass Strait and Tasmania, and Port Phillip Bay, Victoria.

Prionospio dubia Day, 1961

Figures 9–15

Prionospio malmgreni var. *dubia* Day, 1961: 489–490, figs 3j–n.

Prionospio (Prionospio) dubia.—Maciolek, 1985: 336–339, figs 2, 3 (in part, South African specimens).

Prionospio (Prionospio) steenstrupi.—Blake and Kudenov, 1978: 213, fig. 20a (in part; not Malmgren, 1867).

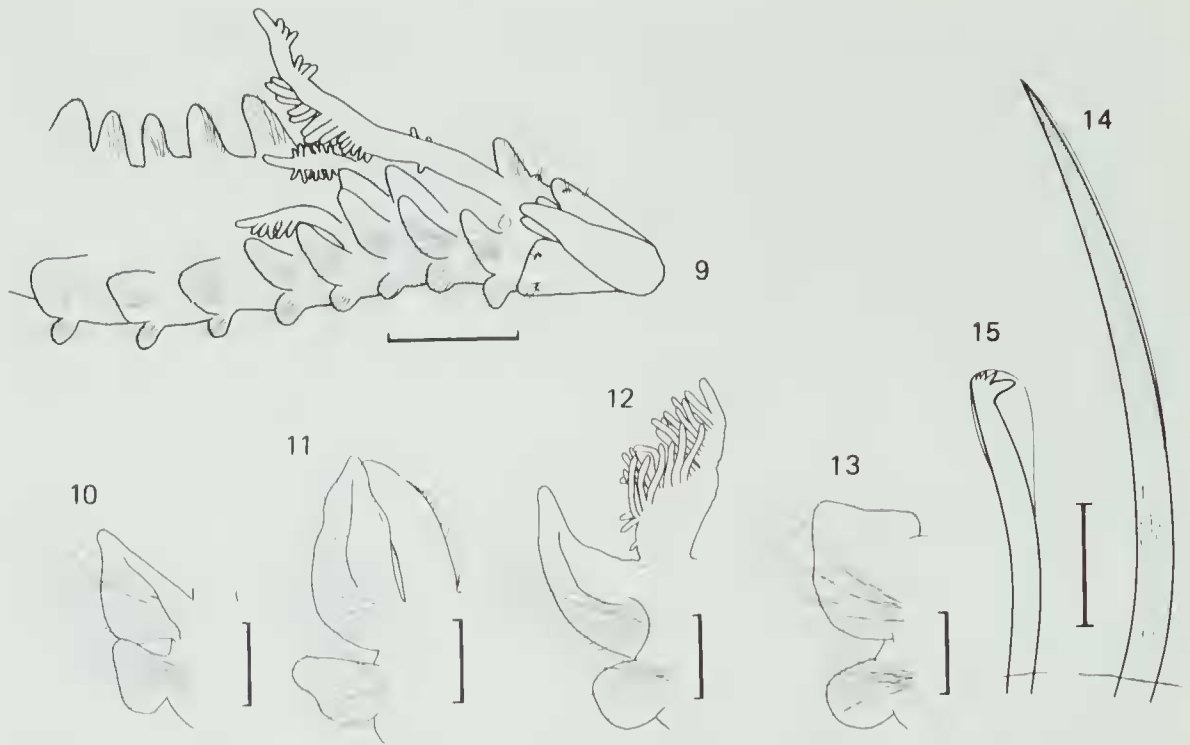
Material examined: South Africa: mixture of 9 stations off South Africa, J.H. Day, BMNH ZK 1961.19.635/662, 9 specimens.

Australia, Southern Ocean: Stn S05/84/01, NMV F50453, 1 specimen; Stn S05/84/64, NMV F50449, 6.

Tasmania: Stn TAS 30, NMV F50478, 2 specimens.

Bass Strait: Stn BSS 66, NMV F50318, 2 specimens; Stn BSS-G 117, NMV F52650, 4; Stn BSS-G 155, NMV F52651, 9; Stn BSS-S 155, NMV F52652, 2; Stn BSS-S 156, NMV F52653, 2; Stn BSS-G 156, NMV F52654, 3; Stn BSS 163, NMV F50321, 1; Stn BSS-G 165, NMV F52655, 7; Stn BSS-G 167, NMV F52656, 2; Stn BSS-S 167, NMV F53164, 1; Stn BSS-S 194, NMV F53165, 1; Stn BSS-S 209, NMV F53166, 1. 112 km S of Lakes Entrance, 148°24.8'S, 139°00.0'E, 99 m, sand, May 1969, Ezzo Gipps Stn 20, C. Phipps, 1 of 2 specimens in AM W13012 (other specimens indeterminate; part of material identified as *P. steenstrupi* by Blake and Kudenov, 1978).

Description. (based on South African specimens) Size range of material 50 setigers, 11 mm long, 0.4 mm wide to 26 setigers, 7.5 mm long, 0.7 mm wide (anterior fragments). Prostomium narrow and rounded anteriorly, extending posteriorly as narrow high caruncle extending back to anterior margin of setiger 2. Eyes visible only in largest specimen as a pair of faint red pigmented spots. Peristomium fused to setiger 1 and forming lateral wings which are more prominent on larger specimens. Prominent nuchal organs on either side of the caruncle (Fig. 9). Palps lost from all specimens. Four pairs of branchiae on setigers 2–5, first pair (intact on one specimen only) 4–5 times as long as notopodial lobe, densely covered with long digitiform pinnac on the anterior surfaces, anteriorly bare but faintly annulate. Branchiae 2 and 3 equal to or slightly



Figures 9–15. *Prionospio dubia*, South African material, BMNH ZK 1961.19.635/662: 9, dorsal view; 10, setiger 2 parapodium (branchia lost); 11, setiger 3 parapodium; 12, setiger 5 parapodium; 13, setiger 10 parapodium; 14, sabre seta, setiger 21; 15, neuropodial hooded hook, setiger 21.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 9); 0.2 mm (Figs 10–13); 0.02 mm (Figs 14–15).

longer than notopodial lobes, stout triangles, apinnate but with ciliated lateral margins. Fourth pair of branchiae equal to or slightly longer than branchiae 2 and 3, densely covered with long digitiform pinnae on posterior surfaces, anterior surfaces bare. Dorsal crests and interparapodial pouches absent. Notopodia elongate asymmetrical triangular lanceolate lobes, largest on setigers 2–4, reducing to low rounded lobes by about setiger 15 and becoming further reduced posteriorly. Neuropodia smaller than notopodia, asymmetrical ovoid lobes over setigers 2–4, subsequently becoming symmetrical and approximately semi-circular, reducing in size posteriorly and becoming low rounded lobes by setiger 20, similar to, but smaller than, notopodium (Figs 10–13). Setae of anterior setigers granulate capillaries, 3 rows in notopodia and 2 rows in neuropodia; capillaries most numerous on anterior 15 setigers, thereafter becoming fewer and longer (up to twice the body diameter).

Stout sabre setae (Fig. 14) appear in ventral neuropodial positions at setigers 17–20, usually setigers 18 or 19, and number 1 or 2 per para-

podium. Neuropodial hooded hooks (6–8 per parapodium) appear at setigers 18 or 19, usually on same or next setiger to appearance of sabre setae. Neuropodial hooded hooks with 3–4 pairs of small teeth in 2 rows above the main fang (Fig. 15). Notopodial hooded hooks absent from all specimens, the longest of which are anterior fragments of 46 and 50 setigers (Day, 1961 reported the appearance of notopodial hooded hooks at setiger 49). Pygidium unknown.

Additional notes on Australian material. (39 anterior fragments, size range 26 setigers, 4 mm long, 0.25 mm wide to 39 setigers, 11.5 mm long, 0.6 mm wide): The specimens from south-eastern Australia agree in every respect with the above description of South African material. A single small specimen (75 mm long for 40 setigers, 0.3 mm wide) has notopodial hooded hooks from setiger 35; these differ from neuropodial hooks only in having a longer shaft. Larger specimens of 39 and 41 setigers have no notopodial hooks. Pygidium unknown.

Remarks. The above description agrees closely with the original description of Day (1961) but

differs from that of Maciolek (1985), notably in the positions at which neuropodial sabre setae and hooded hooks appear. According to Maciolek sabre setae should be present from setigers 13–16 and hooded hooks from setigers 15–19, whereas the material examined here has sabre setae from 17–20 and hooded hooks from 18–19. Maciolek (1985; figs 2a, b) show the prostomium to be truncate and broader anteriorly than that figured here and the first pair of branchiae are shorter than in the South African and southern Australian specimens. Maciolek's list of material examined includes specimens from widespread localities (Atlantic coast of North America, Surinam, Mediterranean, Canary Islands and Bay of Biscay, Sweden; encompassing a depth range of 85 to 2379 m) in addition to the South African material. In view of the above discrepancies it seems likely that Maciolek's material and descriptions may confuse one or more additional species with *P. dubia* and I regard her widespread records as requiring verification. The Australian material is however indistinguishable from the South African specimens both qualitatively and quantitatively (in respect of the distribution of setae) and these specimens are therefore identified as *P. dubia* and represent the first record of that species from Australian waters.

Distribution. South Africa and south-eastern Australia, shelf and upper slope depths, 37 to 630 m.

Prionospio kirrae sp. nov.

Figures 16–23

Material examined: 42 specimens, anterior fragments, size range 18 setigers, 2.5 mm long, 0.3 mm wide to 36 setigers, 13 mm long, 0.5 mm wide.

Holotype: anterior fragment, 36 setigers, 13 mm long, 0.5 mm wide, NMV F50366, Western Bass Strait, 10 km WNW of Cape Otway, 39°49.0'S, 143°24.0'E, 56 m, fine sand, Smith-McIntyre Grab, 20 Nov 1981, G. Poore et al. (Stn BSS-G 184).

Paratypes: Western Bass Strait, type locality; NMV F50367–50372, 6 specimens; AM W203948, 2; NMW.Z.1989.116.2, 2; USNM 122746, 2.

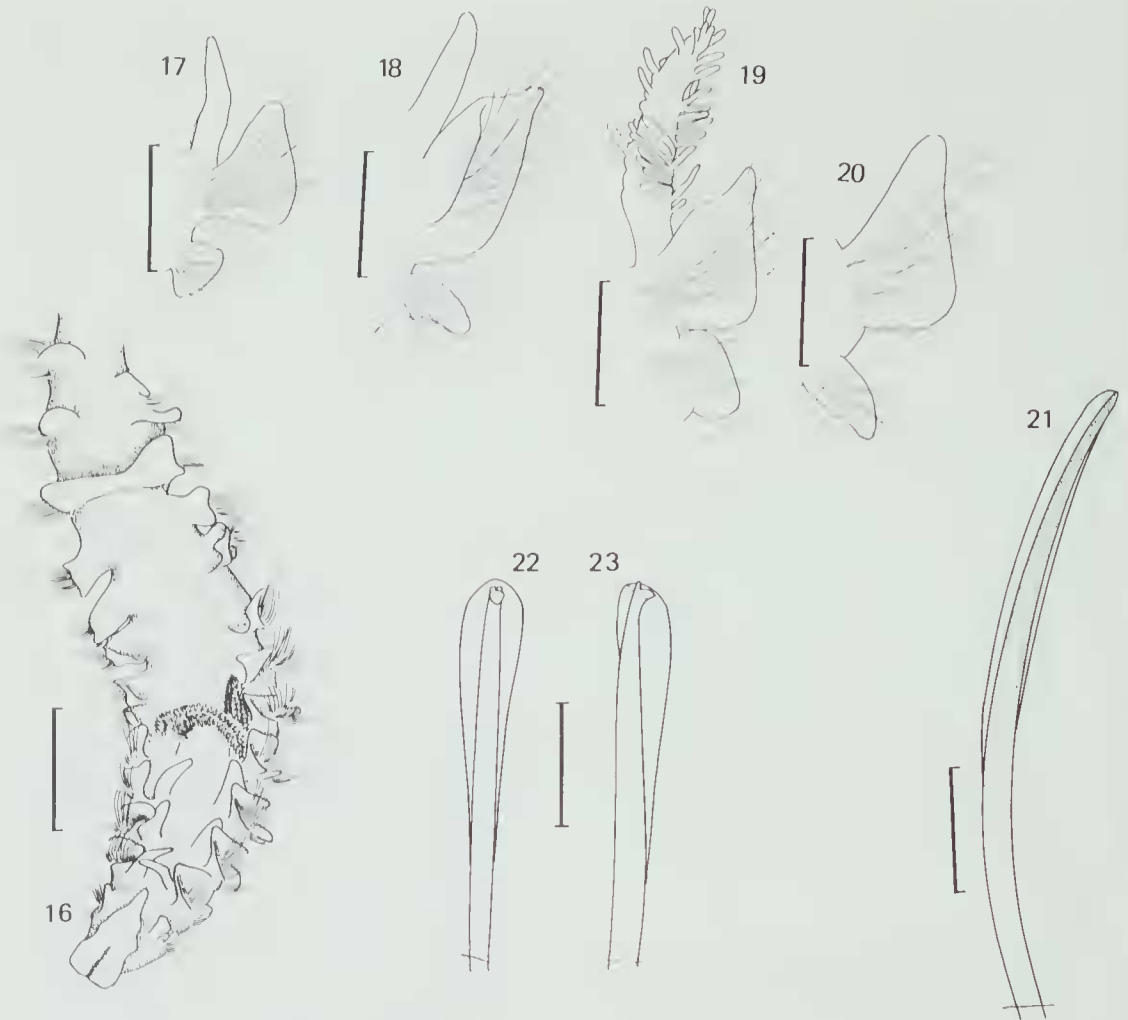
Other material: Tasmania; off entrance to Little Swanport, 10 m, sand, Van Veen Grab, 8 Jun 1977, A.J. Dartnall, TM K1009, 3; off Hellfire Bluff, S of Cape Bernier, 12 m, sand, Van Veen Grab, 7 Jun 1977, A.J. Dartnall, TM K1008, 2; Lagoon Bay, Forestier Peninsula, 16 m, sand, Van Veen Grab, A.J. Dartnall, TM K1007, 1.

Western Bass Strait; Stn BSS 49, NMV F50373–50374, 19 specimens; Stn BSS-G 111, NMV F50375, 12; Stn BSS-S 121, NMV F50376, 1.

Comparative material of other taxa: *Prionospio tridentata*: New South Wales: Towra Pt, Botany Bay, April 1973, 1 specimen, NMV G2844; 2, NMV G2845 (part of material of Blake and Kudenov, 1978).

Description. Prostomium with anterior margin indented and with deep dorsal groove extending back to a point between the first pair of eyes (Fig. 16). Two pairs of eyes, small red points, anterior pair more widely separated. Eyes faint to invisible in holotype and several other specimens. Caruncle attached to dorsum throughout, extending back to posterior margin of setiger 2. Peristomium fused to setiger 1, lateral wings absent. Four pairs of branchiae on setigers 2–5. Apinnate branchiae on setigers 2–4, about equal in length to notopodial lobes; first pair slender, cirriform, pairs 2 and 3 more stout, triangular, with fine marginal cilia. Fourth pair of branchiae about 3 times as long as anterior branchiae, densely pinnate on anterior surfaces, smooth on posterior surfaces and basally. Setiger 1 well developed, with notosetae, neurosetae and small parapodial lobes. Notopodia consisting of triangular lamellae folded dorsally around notosetae on setigers 2–10, largest over setigers 2–7, decreasing posteriorly. Notopodia of setiger 11 unite to form high dorsal crest (Fig. 16). Notopodia of setiger 12 consist of an ovoid postsetal lobe extending partly onto the dorsum but not forming a continuous dorsal crest. Notopodia similar on all posterior setigers, reducing in size and becoming semi-circular in shape by about setiger 15. Neuropodia lanceolate lobes throughout, reducing gradually in size posteriorly but not changing significantly in shape posteriorly (Figs 17–20). Low presetal neuropodial ridge present throughout (to at least setiger 36) but becoming very small on posterior setigers.

Notosetae of setiger 1 single bundles of capillaries, setigers 2 to about 15 with posterior row of granulate unilimbate capillaries and 1–2 anterior rows of shorter simple capillaries, reducing to a single row of granulate capillaries at about setiger 16. Granulate sheathed sabre setae (Fig. 21), one or two per setiger, in ventral neuropodial positions from setiger 10 or 11 (setiger 11 in holotype). Hooded hooks, with 2 apical teeth above main fang (Figs 22–23), appear in neuropodia at setiger 20 in holotype, at setiger 19 to 21 in most specimens or as early as setiger 17 in small worms. Only one specimen, paratype NMV F50369, has notopodial hooded hooks (from setiger 18) but this worm is regenerating new posterior setigers from setiger 16 and is undoubtedly atypical. All other specimens



Figures 16–23. *Prionospio kirrae*, holotype NMV F50366: 16, dorsal view; 17, setiger 2 parapodium; 18, setiger 4 parapodium; 19, setiger 5 parapodium; 20, setiger 10 parapodium; 21, sabre seta, setiger 20; 22, neuropodial hooded hook, setiger 36, frontal view; 23, same, lateral view.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 16); 0.2 mm (Figs 17–20); 0.02 mm (Figs 21–23).

are anterior fragments of up to 36 setigers and all lack notopodial hooded hooks. Paratype NMV F50369, regenerating posteriorly, is the only specimen with a pygidium: it is typical for the genus with a long medial cirrus and a pair of lateral lappets.

Remarks. *Prionospio kirrae* sp. nov. belongs to the *P. caspersi* group of species which are characterised by having the first three pairs of branchiae apinnate, the fourth pair pinnate and

hooded hooks with only 1 or 2 apical teeth. This group of species was placed in the new genus *Apoprionospio* by Foster (1969) but this approach has not been generally followed by other workers (e.g. Blake and Kudenov, 1978). *Apoprionospio* was redefined by Maciolek (1985) and the *P. caspersi* species group was returned to *Prionospio*. The four previously known species of the *P. caspersi* group were compared in Table 3 of Maciolek (1985: 375, species 18–21). *Prionospio kirrae* most closely resem-

bles *P. tridentata* Blake and Kudenov, 1978 in possessing hooded hooks with 2 apical teeth but can be distinguished from that species by having a prominent dorsal crest on setiger 11 and by having the fourth pair of branchiae pinnate on the anterior surfaces (*P. tridentata* has a dorsal crest on setiger 7 and has the fourth pair of branchiae pinnate on the posterior surfaces). *Prionospio tridentata* is widespread in New South Wales (Blake and Kudenov, 1978; Huthings and Murray, 1984) whereas *P. kirrae* occurs in western Bass Strait. Despite extensive sampling *P. kirrae* has not been collected from eastern Bass Strait.

Etymology. The specific name *kirrae* is derived from the name of an Australian aboriginal tribe whose territory encompassed the coastal region immediately west of Cape Otway, Victoria.

Distribution. Known only from western Bass Strait, from Cape Otway to north-western Tasmania. Sandy sediments, 29–84 m.

Prionospio kulin sp. nov.

Figures 24–33

Prionospio steenstrupi.—Blake and Kudenov, 1978: 213, fig. 20a (in part; not Malmgren, 1867).

Material examined: More than 400 specimens; size range 27 setigers, 5.5 mm long, 0.3 mm wide to 51 setigers, 20 mm long, 0.8 mm wide (anterior fragments).

Holotype: entire specimen, 58 setigers, 11 mm long, 0.5 mm wide at setiger 5, NMV F50377. Eastern Bass Strait, 112 km S of Lakes Entrance, 38°53.7'S, 147°55.2'E, 71 m, medium carbonate sand with 2% mud (sediment data from Smith-McIntyre Grab sample, same station), Agassiz trawl, 17 Nov 1981, G. Poore et al. (Stn BSS-T 171).

Paratypes: Eastern Bass Strait, type locality, NMV F50378–50379, 2 paratypes. Eastern Bass Strait, type locality, Smith-McIntyre Grab: NMV F50380–50381, 2 paratypes; AM W203949, 3 paratypes; NMW.Z.1989.116.3, 3 paratypes; USNM 12277, 3 paratypes. Eastern Bass Strait, type locality, epibenthic sled (Stn BSS-S 171), NMV F50382–50384, 3 paratypes. Eastern Bass Strait, 35 km E of Lady Barron, Flinders Island, 40°14.4'S, 148°40.0'E, 60 m, fine carbonate sand with 8% mud, Smith McIntyre Grab, 14 Nov 1981, G. Poore et al., Stn BSS-G 165, 8 paratypes. NMV F50385–50392.

Other material: Tasmania: Pirates Bay, 7 Jun 1977, A.J. Dartnall, TM K1010.

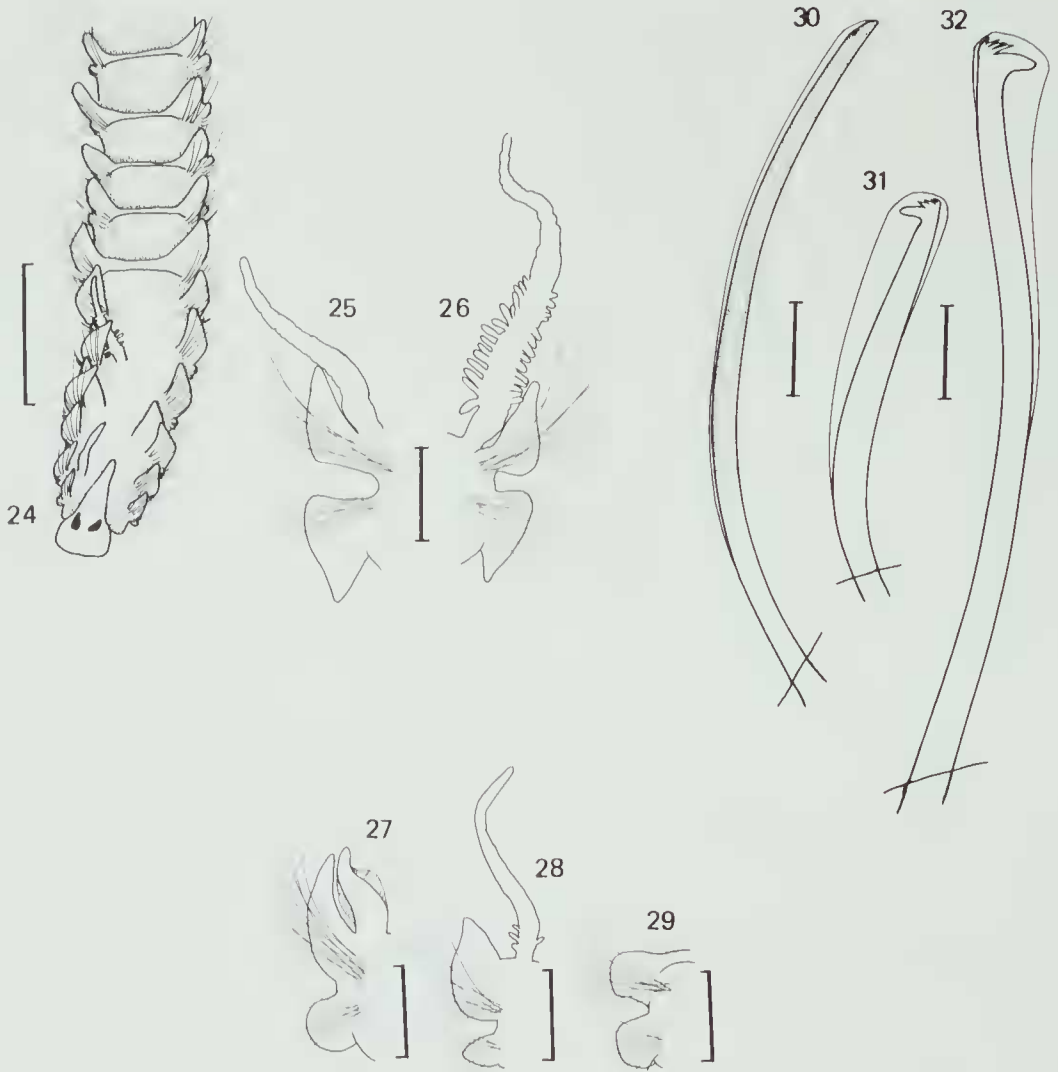
Bass Strait: Erith Island, transect 3, algal washings, S.A. Shepherd, AM unreg.; Stn BSS 56, NMV F50393–50394, 8 specimens; Stn BSS-G 112, NMV F50395, 18; Stn BSS-S 165, NMV F50396, 7; Stns BSS-G 172, BSS-S 172, NMV F50397–50398, 14; Stn BSS-G 205, NMV F50399, 1. NMV unregistered, Stns BSS 48, 49,

64, 69, 108, 111, 115, 125, 156, 160, 193, 200, 202, 209 (a selection of material from over 60 stations).

New South Wales: North Head, Sydney, Shell Benthic Survey, 32 m, 25 May 1972, AM W6505, 1 specimen (part of material identified as *P. steenstrupi* by Blake and Kudenov, 1978).

Description. Prostomium with anterior margin rounded, widest anteriorly, extending back as narrow caruncle back to posterior margin of setiger 2 (Fig. 24). Holotype with one pair of red comma shaped eyes, other material with 0–2 pairs of eyes. Peristomium fused to setiger 1, not forming lateral wings. Setiger 1 with notosetae, neurosetae and reduced parapodial lobes. Four pairs of branchiae on setigers 2–5, branchiae 1 and 4 up to 3 times as long as branchiae 2 and 3. First pair of branchiae with long pinnae on posterior surfaces, bare distally. Pinnae apparently readily lost from the first pair of branchiae: many specimens with only a few pinnae and most larger specimens (0.6 mm wide and more) with no pinnae visible on first pair of branchiae (Fig. 25). Branchiae 2 and 3 apinnate, stout triangles similar in length to notopodial lobes. Fourth pair of branchiae always with long pinnae basally on the posterior surfaces. Notopodia largest over setigers 2–6, becoming lower, rounded from setiger 7 and reducing posteriorly to about setiger 35. Notopodia becoming elongate to triangular from about setiger 35 and on all subsequent setigers. Neuropodia largest over setigers 2–4, with prominent acuminate ventral process on setiger 2, becoming rounded and reducing in size posteriorly back to about setiger 40 (Figs 25–29), thereafter present as a triangular lobe. Notopodia unite to form prominent dorsal crest on setiger 7. Dorsal crests much lower on setiger 8 and posteriorly, present as low ridges back to setiger 20 in holotype or to setigers 17–21 in other material. Interparapodial pouches absent in type series but occur over some or all of setigers 9–13 in some non-type specimens.

Setae anteriorly bilimbate granulate capillaries in notopodia and neuropodia, changing to smooth nonlimbate capillaries between about setigers 10–15. Unilimbate granulate sabre setae (Fig. 30) appear in ventral neuropodial positions from setiger 10. Hooded hooks with 4–5 pairs of apical teeth above main fang (Figs 31–32) appear in neuropodia at setiger 19 and in notopodia at setiger 32 in holotype (hooded hooks first present earlier in smaller specimens, appearing in neuropodia at setigers 13–21 and in notopodia at setigers 21–39 in other material studied). Neuropodial hooded hooks with longer



Figures 24–32. *Prionospio kulin*: 24, dorsal view, holotype NMV F50377; 25, setiger 2 parapodium, holotype; 26, setiger 2 parapodium, paratype NMV F50387; 27, setiger 4 parapodium, holotype; 28, setiger 5 parapodium, paratype NMV F50387; 29, setiger 10 parapodium, paratype NMV F50387; 30, sabre seta, setiger 19, holotype; 31, neuropodial hooded hook, setiger 19, holotype; 32, notopodial hooded hook, holotype.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 24); 0.2 mm (Figs 25–29); 0.02 mm (Figs 30–32).

shaft than in other species of *Prionospio* examined in this study, projecting beyond neuropodial lamella. Pygidium unknown (all specimens incomplete or damaged posteriorly).

Remarks. *Prionospio kulin* sp. nov. belongs to the *P. steenstrupi* group of species which are characterised by having the first and fourth pair of branchiae pinnate and hooded hooks with 4–

6 pairs of apical teeth. The 12 previously known species of the *P. steenstrupi* group were compared in Table 3 of Maciolek (1985: 375, species 1–12). Three additional species in the *P. steenstrupi* group are described in this paper: *P. coorilla*, *P. kulin* and *P. nirripa* spp. nov. *Prionospio kulin* is most similar to *P. steenstrupi* as redescribed by Maciolek (1985) but can be distinguished from the latter species by the earlier appearance of notopodial hooded hooks (at

setigers 25–39, compared with at setigers 43–54 in *P. steenstrupi*); the shape of the prostomium, which is widest anteriorly and narrower at the level of the eyes in *P. kulin* but is equally wide at the level of the eyes in *P. steenstrupi*; and the absence of peristomial wings in *P. kulin* (*P. steenstrupi* has low peristomial wings). *Prionospio kulin* is also characterised by the constancy of several other characters: dorsal crests are present over setigers 7 to 18–21 and sabre setae are always present from setiger 10 in *P. kulin* but both characters were reported by Maeiolk (1985) to be more variable in *P. steenstrupi*. Among the Australian species of *Prionospio*, *P. kulin* is most similar to *P. multicristata* Hutchings and Rainer, 1979 but can be distinguished by the having a shorter caruncle (extending to setiger 2) and having dorsal crests limited to setigers 7–21 at most (*P. multicristata* has a caruncle extending to setiger 4 and dorsal crests on setigers 7–30).

The apparent case with which the pinnae are lost from the first pair of branchiae in *P. kulin*

requires comment. Presence/absence of branchial pinnae is a major taxonomic character within genera in the *Prionospio* complex and consistent absence of pinnae in any material under study would normally imply the presence of an additional species. However in this study no additional characters were found which would consistently separate specimens on the basis of presence/absence of first branchial pinnae. Even among those specimens which do possess pinnae on the first pair of branchiae, those pinnae are often fragile and few in number. Figure 33 shows that this variability appears to be size related and all material is thus referred to a single species. Branchial pinnae appear to be very readily shed in *P. kulin* and this character should be assessed cautiously in small or poorly preserved samples. (Such extreme fragility of branchial pinnae was not seen in any other species of *Prionospio* examined in this study.)

Etymology. *Prionospio kulin* is named for the four tribes of Australian aborigines from the

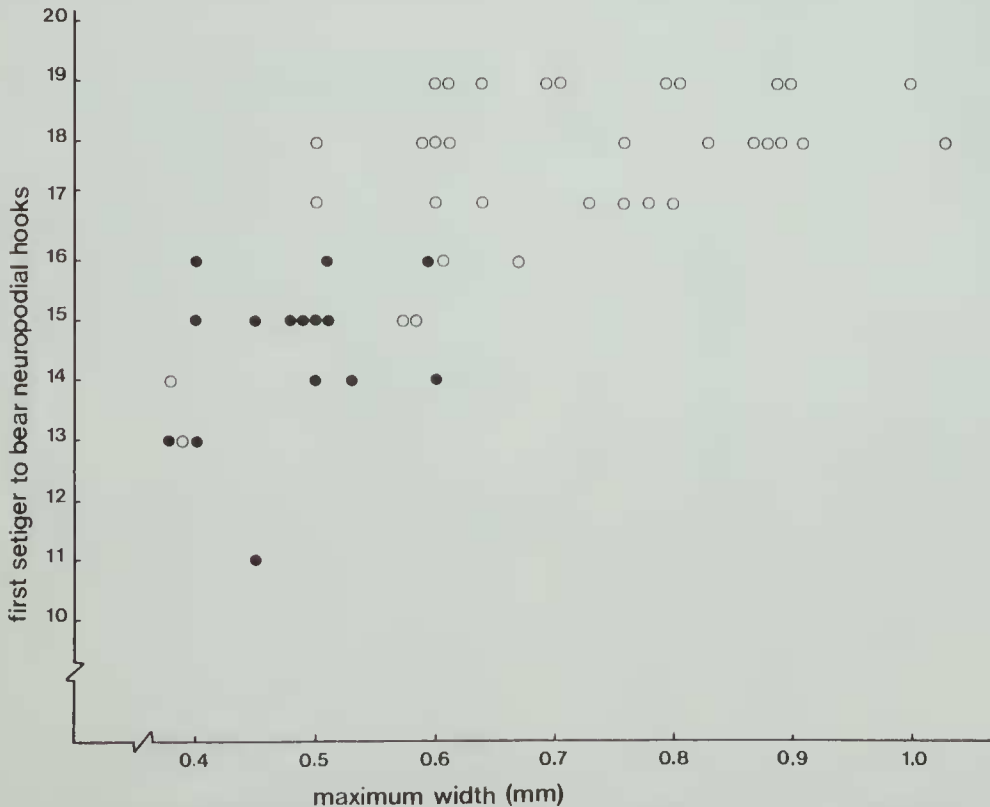


Figure 33. *Prionospio kulin*. Graph of first setiger to bear neuropodial hooks versus maximum width (in mm, including parapodia). Open circles = specimens apparently lacking pinnae on first pair of branchiae, closed circles = specimens with pinnate first pair of branchiae.

Port Phillip region of Victoria; these tribes collectively called themselves the Kulin "nation".

Distribution. *Prionospio kulin* is widespread in Bass Strait on a variety of sediments, 16–137 m, also known from a single record off North Head, Sydney, 32 m.

Prionospio multicristata
Hutchings and Rainer, 1979

Prionospio multicristata Hutchings and Rainer, 1979: 768–771, fig 5A–I.—Hutchings and Turvey, 1984: 11–12.—Hutchings and Murray, 1984: 60–61.—Hartmann-Schröder, 1982: 86–87, 1984: 36.

Prionospio malmgreni.—Hutchings, 1974: 182 (not Claparède, 1870).

Material examined. South Australia: Port Lincoln: HT Stn 11A, AM W194022, 1 specimen; HT Stn 13A, AM W194021, 2.

New South Wales: Careel Bay, Pittwater, Posidonia, 30 Mar 1973, P. Hutchings, AM W8286, holotype. Material identified as *P. steenstrupi* by Blake and Kudenov, 1978: Wallis Lake, Forster, boatsheds, 0.3 m, *Zostera* beds and sand, 24 May 1968, H. Paxton, AM W4242, 1; Wallis Lake, Forster, boatsheds, 0.3 m, *Zostera* beds and sand, 21 May 1968, H. Paxton, AM W4254, 2; Wallis Lake, mixed weed bed, Dec 1970, Dixon and O'Gower, AM W5018, 1; Wallis Lake, *Zostera* beds, Dixon and O'Gower, Dec 1970, AM W5020, 19; Wallis Lake, near Charlotte Bay, thick weed and clayey mud, Dixon and O'Gower, Dec 1970, AM W5021, 2.

Description. Size range of material 48 setigers, 8 mm long, 0.5 mm wide to 69 setigers, 22 mm long, 1.0 mm wide (anterior fragments). Prostomium rounded anteriorly, extending back as narrow caruncle back to anterior margin of setiger 4. Two pairs of black eyes, posterior pair larger, comma shaped. Peristomium forming low lateral wings. Four pairs of branchiae: first and fourth pairs with long pinnae basally, bare distally, second and third pairs apinnate, shorter and triangular. Neuropodial lamellae of setiger 2 produced ventrally into acuminate lobes. Low dorsal crests from setiger 7 to about setiger 30. Neuropodial sabre setae from setiger 10, hooded hooks from setigers 14–18; notopodial hooded hooks from setigers 27–40. Hooded hooks with 4–5 pairs of teeth above the main fang.

Remarks. I have re-examined Blake and Kudenov's (1978) records of *Prionospio steenstrupi* from south-eastern Australia and compared this material with Maciolek's (1985) redescription of *P. steenstrupi* (based on the syntype series). Most of Blake and Kudenov's material was collected from the Wallis Lake estuary, New South Wales. These specimens (listed above)

agree in every detail with the holotype and original description of *P. multicristata* Hutchings and Rainer and are thus referred to that species. *Prionospio multicristata* is distinguished from other Australian species of the genus by the long caruncle, the ventral neuropodial projection of setiger 2 and the dorsal crests on setigers 7–30. I have referred the remainder of Blake and Kudenov's material of *P. steenstrupi* to *P. dubia* Day, 1961, *P. coorilla* sp. nov. and *P. kulin* sp. nov. (see above).

Distribution. Western Australia, South Australia, New South Wales and southern Queensland, mostly from estuaries (Hartmann-Schröder, 1982, 1984; Hutchings and Murray, 1984).

Prionospio multipinnulata
Blake and Kudenov, 1978

Prionospio (Aquilaspio) multipinnulata Blake and Kudenov, 1978: 219–221, fig 24a–f.—Hartmann-Schröder, 1984: 81–82, 1986: 54.

Aquilaspio multipinnulata.—Hutchings and Turvey, 1984: 9.

Material examined. Victoria: Port Phillip Bay, PPBES Stn 953, NMV G2836, holotype; PPBES Stn 953, NMV G2833–2835, 5 paratypes.

Tasmania: Fortescue Bay, Tasman Peninsula, 10 m, sand, 7 June 1977, Van Veen Grab, A.J. Dartnall, TM K1004, 11 specimens; Pirates Bay, Eaglehawk Neck, 8 m, sand, 7 June 1977, Van Veen Grab, A.J. Dartnall, TM K1005, 2; off Spring Beach, SE of Orford, 20 m, 9 June 1977, A.J. Dartnall, TM K1006, 3. Stn TAS 11, NMV F50471, 4; Stn TAS 18, NMV F50472, 30; Stn TAS 35, NMV F50465, 7; Stn TAS 36, NMV F50456, 2; Stn TAS 37, NMV F50460, 30; Stn TAS 38, NMV F50457, 1; Stn TAS 40, NMV F50461, 3; Stn TAS 41, NMV F50459, 2; Stn TAS 47, NMV F50458, 1; Stn TAS 48, NMV F50462, 1.

Description. Size range of material 49 setigers, 9 mm long, 0.4 mm wide to 115 setigers, 25 mm long, 0.7 mm wide (anterior fragments). Prostomium rounded anteriorly, extending as narrow caruncle to anterior margin of setiger 2. Setiger 1 well developed, fused to peristomium which forms low lateral wings. Four pairs of branchiae on setigers 2–5, each branchia with digitiform pinnules on the posterior surfaces. Dorsal crests absent or occasionally present as very low membranes (barely visible) from about setiger 10. Sabre setae in ventral neuropodial positions from setiger 10–11. Hooded hooks, with 4–5 pairs of teeth above main fang, appear in neuropodia from setiger 17–22, and in notopodia from setiger 26–30. Pygidium with long medial cirrus and pair of lateral lappets.

Remarks. The specimens examined here agree closely with the descriptions of Blake and Kudenov (1978) and Hutchings and Turvey (1984), the only difference being that some specimens have more sparsely distributed branchial pinnules than in the type series.

Distribution. South Australia, Tasmania, Victoria, southern New South Wales. This is the first record of *P. multipinnulata* from Tasmania. Two small specimens close to *P. multipinnulata* were reported from Western Australia by Hartmann-Schröder (1984), but the material was too small to be confident of a specific identification.

***Prionospio nirripa* sp. nov.**

Figures 34–40

Material examined. 250 specimens, size range 42 setigers, 12 mm long, 0.5 mm wide (entire specimen) to 61 setigers, 22 mm long, 0.9 mm wide (anterior fragment).

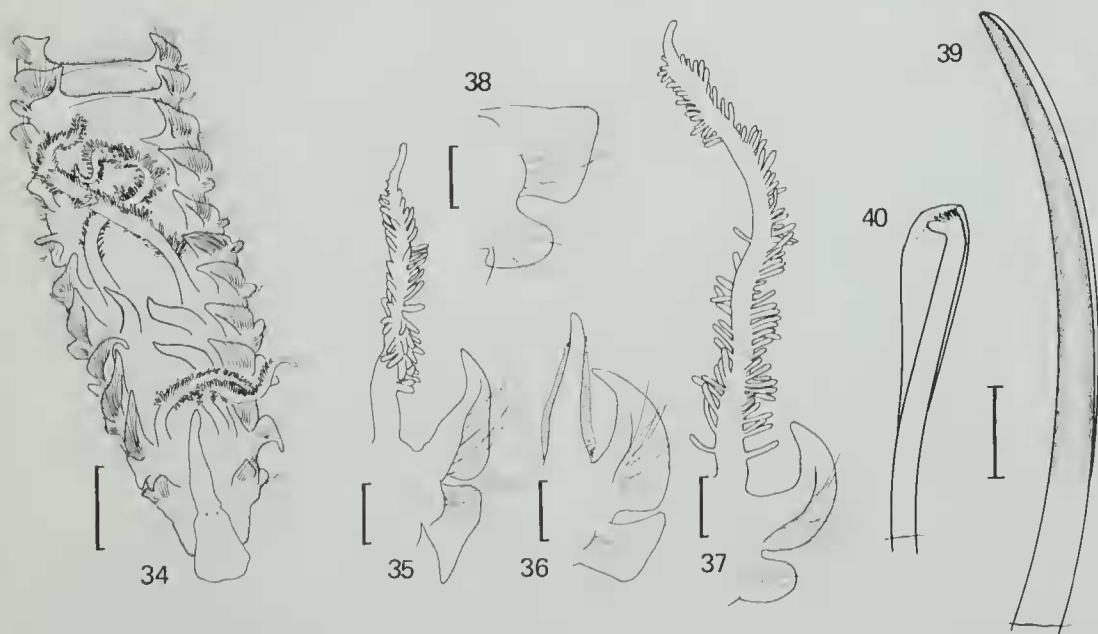
Holotype: anterior fragment, 28 setigers, 9 mm long, 0.9 mm wide, NMV F50359. Western Bass Strait, 27 km S of Cape Otway, 39°6.0'S, 143°35.8'E, 95 m, fine carbonate sand, Smith-Melntyre Grab, 31 Jan 1981, M. Gomon et al. (Stn BSS-G 118).

Paratypes: Western Bass Strait, type locality: NMV F50360–50361, 2 paratypes. Western Bass Strait, 30

km SSW of Cape Otway, 39°8'S, 143°24'E, 77 m, medium carbonate sand, Smith-Melntyre Grab, 8 Oct 1980, G. Poore (Stn BSS-G 56) USNM 122748, 4 paratypes; 65 km SSW of Cape Otway, 39°22'S, 143°10'E, 99 m, medium carbonate sand, pipe dredge, 10 Oct 1980, G. Poore (Stn BSS 71), AM W203950, 1 paratype; 30 km SW of Cape Otway, 39°01.1'S, 143°15.2'E, 84 m, medium sand, epibenthic sled, 31 Jan 1981, M. Gomon et al. (Stn BSS-S 121), AM W203951, 2 paratypes; 35 km W of Cape Otway, 38°50.0'S, 143°7.5'E, 69 m, medium carbonate sand, Smith Melntyre Grab, 20 Nov 1981, G. Poore et al. (Stn BSS-G 186), NMW.Z.1989.116.4, 3 paratypes.

Other material: Western Bass Strait: Stn BSS 55, NMV F50362, 3 specimens; Stn BSS-G 115, NMV F50363, 1; Stn BSS-G 171, NMV F50364, 7; Stn BSS-G 200, NMV F50365, 4. NMV unregistered: Stns BSS 47, 49, 50, 51, 55, 56, 57, 60, 61, 71, 75, 76, 77, 78, 108, 112, 115, 118, 119, 120, 121, 162, 165, 163, 165, 168, 171, 172, 173, 175, 182, 185, 186, 188, 193, 197, 198, 200, 201, 202, 205, 206, 208, (total of 223 specimens).

Description. Prostomium broad anteriorly with shallow indentation in anterior margin (Fig. 34). Two pairs of red eyes, anterior pair more widely separated and more deeply embedded (indistinct in holotype and some other specimens), posterior pair distinct in all material. Prostomium produced posteriorly into a long narrow



Figures 34–40. *Prionospio nirripa*, holotype NMV F50359: 34, dorsal view; 35, setiger 2 parapodium; 36, setiger 3 parapodium; 37, setiger 5 parapodium; 38, setiger 10 parapodium; 39, sabre seta, setiger 17; 40, neuropodial hooded hook, setiger 51, USNM paratype.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 34); 0.2 mm (Figs 35–38); 0.02 mm (Figs 39, 40).

caruncle extending back to posterior margin of setiger 2, attached to dorsum throughout. Peristomium fused to setiger 1, lateral wings absent. Four pairs of branchiae on setigers 2–5. First pair of branchiae as long as or up to twice as long as notopodial lobes, with long digitiform pinnae on posterior surfaces, bare anteriorly and on extreme basal and distal regions. Branchiae 2 and 3 equal in length to notopodial lobes, stout triangular, apinnate but with ciliated lateral margins. Fourth pair of branchiae 2 to 4 times as long as branchiae 2 and 3, with long digitiform pinnae on posterior surfaces, bare anteriorly and on extreme basal region. Setiger 1 well developed, with small ovoid parapodial lobes and setae in noto- and neuropodia. Notopodia of setigers 2–9 triangular lamellae, largest on setigers 3–5. Notopodia of setiger 10 and subsequent setigers becoming sub-ovoid in shape and extending across dorsum as low continuous dorsal crest from setiger 10. Dorsal crest reducing posteriorly but still present (but membranous and difficult to see) at least as far back as setiger 30. Neuropodium of setiger 2 distinctive, with a ventrally produced triangular lobe (Fig. 35), neuropodia of setiger 3 and subsequent setigers trapezoid in shape, reducing in size on posterior setigers (Figs 35–38). Neuropodia with low presetal ridge.

Notosetae of setiger 1 a single bundle of granulate unilimbate capillaries, setigers 2 to about 20 with anterior row of short, wide, bilimbate granulate capillaries and posterior row of longer curved bilimbate granulate capillaries. Posterior notosetae (from about setiger 15) unilimbate smooth capillaries. Neurosetae uni- and bilimbate granulate capillaries anteriorly, granulae becoming less obvious on setae of posterior setigers; capillaries smooth and unilimbate from about setiger 15. One or two large granulate sheathed sabre setae (Fig. 39) in ventral neuropodial positions from setiger 10. Hooded hooks with 5–6 pairs of teeth above main fang (Fig. 40) appear in neuropodia at setiger 17 in holotype, at setigers 15–17 in most specimens or as early as setiger 14 in small worms. Hooded hooks identical to those in neuropodia appear in notopodia from setigers 22–26 in small specimens (0.6 mm wide) or later at setiger 35–36 in specimens 1.0 mm wide. Pygidium typical for genus, with long medial cirrus and pair of lateral lappets.

Remarks. *Prionospio nirripta* belongs to the *P. steenstrupi* group of species which have the first and fourth pairs of branchiae pinnate and the second and third pairs apinnate. The *P. steen-*

strupi group now comprises 15 species, including three new species described in this paper (*P. coorilla*, *P. kulin* and *P. nirripta*). The 12 previously known species were compared in Table 3 of Macioldk (1985: 375, species 1–12). *Prionospio nirripta* most closely resembles *P. multicristata* Hutchings and Rainer, 1979 in the setigers at which sabre setae and hooded hooks appear and in the ventral triangular projection of the neuropodia of setiger 2. The two species differ in the position at which dorsal crests occur: *P. multicristata* has a high dorsal crest on setiger 7, decreasing regularly in height posteriorly to about setiger 30 whereas *P. nirripta* has low dorsal crests on setiger 10, decreasing posteriorly to at least setiger 30. *Prionospio nirripta* also has a shorter caruncle than *P. multicristata* and differs further in the arrangement of the pinnae on the first and fourth pairs of branchiae: the branchiae are densely pinnate basally in *P. multicristata* and bare distally whereas in *P. nirripta* the branchiae are bare or sparsely pinnate basally and densely pinnate on the medial and distal portion. *Prionospio multicristata* has been recorded from South Australia, New South Wales and Queensland, mostly from estuaries. *Prionospio nirripta* is known only from Bass Strait where it occurs widely on carbonate sediments, 21 to 99 m depth.

Etymology. The specific name *nirripta* is derived from an Australian aboriginal word meaning "the sea".

Distribution. Widespread in eastern and western Bass Strait on a variety of sandy and muddy sediments, 21–99 m depth.

Prionospio pilkena sp. nov.

Figures 41–47

Material examined. 6 specimens, anterior fragments, size range 48 setigers, 10 mm long, 0.25 mm wide to 30 setigers, 4.5 mm long, 0.35 mm wide.

Holotype: anterior fragment, 57 setigers, 15 mm long, 0.35 mm wide. NMV F50407. Western Bass Strait, 65 km SSW of Cape Otway, 39°21'S, 143°06'E, 101 m, medium carbonate sand, pipe dredge, 10 Oct 1980. G. Poore et al. (Stn BSS 70).

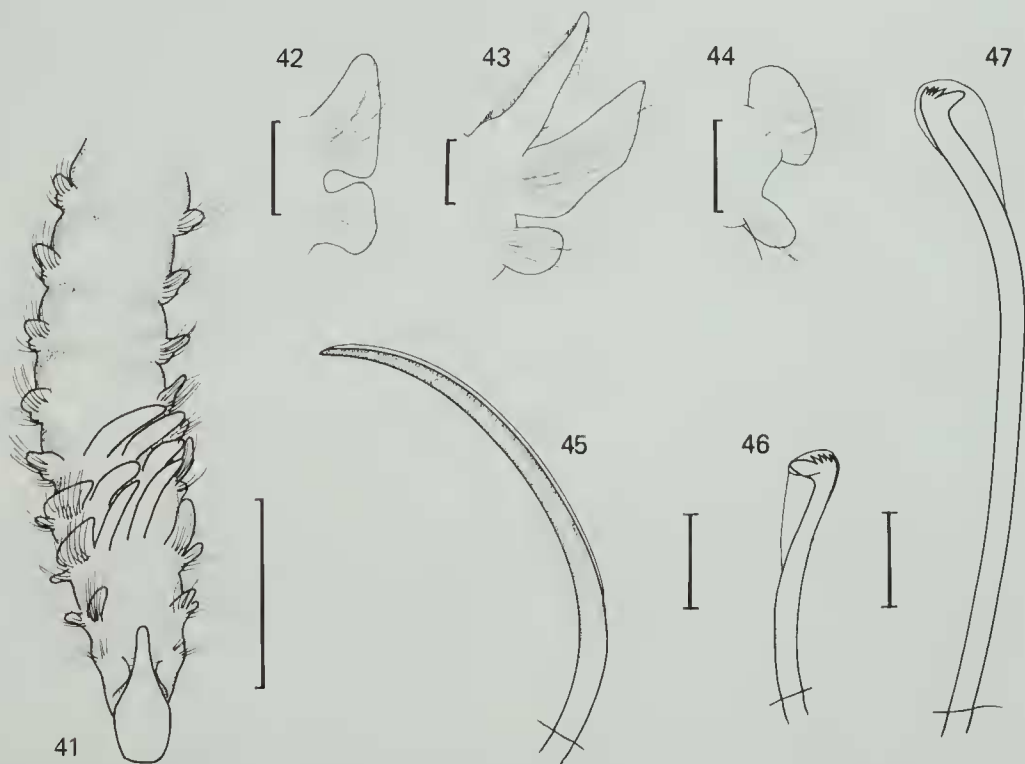
Paratypes: Western Bass Strait, type locality, NMV F50408, 1 paratype. Western Bass Strait, 15 km S of Cape Otway, 39°00'S, 143°32'E, 79 m, medium carbonate sand, naturalists dredge, 8 Oct 1980, G. Poore et al. (Stn BSS 50). NMV F50409, 1 paratype. Western Bass Strait, 62 km SW of Cape Otway, 39°18'S, 143°03'E, 113 m, coarse carbonate sand, Smith McIntyre Grab, 10 Oct 1980, G. Poore et al. (Stn BSS 69). AM W203952, 1 paratype. South-western Bass Strait, mid-point of strait separating Three Hummock

Island and Walker Island, NW Tasmania, 40°31'S, 144°56'E, 27 m, very coarse shell, Smith McIntyre Grab, 2 Nov 1980, P. Forsyth et al. (Stn BSS-G 109), USNM 122749, 1 paratype. Western Bass Strait, 30 km S of Warrnambool, 38°42.8'S, 142°35.6'E, 69 m, coarse sand, pipe dredge, 20 Nov 1981, R. Wilson et al., (Stn BSS 189), NMW.Z.1989.116.5, 1 paratype.

Description. Prostomium broadly rounded anteriorly, narrowing sharply in posterior third to form caruncle extending back to posterior margin of setiger 1 (Fig. 41). No nuchal organ or eyes visible. Peristomium fused to setiger 1, forming low lateral wings which partly enclose the posterior third of prostomium. Setiger 1 reduced, with few capillary noto- and neurosetae but without parapodial lamellae. Notopodia lanceolate lobes, longest over setigers 2-4, thereafter reducing quickly to low rounded lobes, very small and barely visible by about setiger 20. Neuropodia largest over setigers 2-4 (Figs 42-44), ovoid in shape and reducing in size pos-

teriorly from setiger 3 becoming vestigial rounded lobes by about setiger 20. Three pairs of apinnate branchiae on setigers 3-5, digitiform to slightly lanceolate in form. First pair of branchiae with heavily ciliated margins (Fig. 43) and slightly longer than longest notopodial lobe, other branchiae about equal to notopodial lobe length. Branchiae absent from setiger 2 in all specimens; no branchial scars visible under either light or scanning electron microscopes. Dorsal crests and interparapodial pouches absent.

Notosetae and neurosetae all granulate uni- and bilimbate capillaries in 2 rows anteriorly, reducing to a single row of smooth nonlimbate capillaries in each fascicle by setigers 15-20. Sabre setae appear in ventral neuropodial positions at setigers 15-16 (setiger 15 in holotype). Sabre setae anteriorly heavily granulate and strongly unilimbate (Fig. 45), posteriorly (by about setiger 40) with finer granulae present



Figures 41-47. *Prionospio pilkena*: 41, dorsal view, holotype NMV F50407; 42, setiger 2 parapodium, paratype NMV F50408; 43, setiger 3 parapodium, holotype; 44, setiger 9 parapodium, paratype NMV F50408; 45, sabre seta, setiger 16, holotype; 46, neuropodial hooded hook, setiger 51, holotype; 47, notopodial hooded hook, setiger 49, holotype.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 41); 0.02 mm (Figs 45-47); 0.1 mm (Figs 42-44).

only over distal half. Hooded hooks with 4 pairs of small apical teeth above main fang (Fig. 46) appear in neuropodia at setigers 18–19 (setiger 18 in holotype). Notopodial hooded hooks (Fig. 47), with longer shafts but otherwise identical to neuropodial hooded hooks, appear in holotype at setiger 45, and at setiger 52 in only other specimen to carry notopodial hooded hooks (paratype NMV F50408). Pygidium unknown.

Remarks. *Prionospio pilkena* is unusual among species in the *Prionospio* complex in lacking branchiae on setiger 2; only 3 other species share this character: *Prionospio banyulensis* Laubier, 1968, *P. ockelmanni* Pleijel, 1985 and *Aurospio boreus* Maciolek, 1981. The genus *Aurospio* Maciolek, 1981 was defined by Maciolek as having two pairs of apinnate branchiae on setigers 3 and 4, branchiae partly fused to the notopodia, and hooded hooks lacking secondary hood. Subsequently, *Prionospio banyulensis* Laubier, 1968 has been questionably referred to *Aurospio* by Maciolek (1985). Nevertheless, no other species of *Prionospio* shares the characters used to define *Aurospio*, and I prefer to retain *Aurospio* as a monotypic genus, containing *A. boreus*, until type material of all taxa can be examined.

Prionospio pilkena is most similar to *P. ockelmanni* and *P. banyulensis*, however the new species can be readily distinguished by the form of the prostomium and caruncle. The prostomium of *P. pilkena* is narrow and elongate and the caruncle extends back to the posterior margin of setiger 2 whereas *P. banyulensis* and *P. ockelmanni* have prostomia which are broader and blunt anteriorly and caruncles which barely extend to the posterior limit of the first setiger. The distribution of setae also distinguish *P. pilkena*: sabre setae appear at setigers 15–16 in *P. pilkena* but are present from setiger 10 in *P. banyulensis* and *P. ockelmanni*, and neuropodial hooded hooks appear at setigers 18–19 in *P. pilkena* and at setiger 12 in *P. banyulensis* and *P. ockelmanni*. (*Prionospio banyulensis* and *P. ockelmanni* are similar in the arrangement of branchiae and setae and may be synonymous.) *Prionospio pilkena* is also similar to *P. japonica* Okuda, 1935 but differs in the structure of the sabre setae have an unusual long fine point in *P. japonica* (Okuda, 1935: fig. 1e) which is lacking in *P. pilkena*, in lacking branchiae on setiger 2, in the later appearance of sabre setae (at setigers 15–16 as against at setiger 10 in *P. japonica*) and the later appearance of notopodial hooded hooks (at setiger 45–52 as against at setiger 27 in *P. japonica*).

The absence of dorsal crests, the strongly reduced notopodia (except on setigers 3–5) and the presence of apinnate branchiae on setigers 3–5 only, readily distinguish *P. pilkena* from all other Australian species of *Prionospio*.

Etymology. The specific name *pilkena* is derived from an Australian aboriginal word meaning "different".

Distribution. Known only from six specimens from western Bass Strait, south-eastern Australia, 27–113 m, carbonate sediments.

Prionospio tatura sp. nov.

Figures 48–56

Prionospio (Minuspio) cirrifera.—Blake and Kudenov, 1978: 222–224, Fig. 25a (in part, not Wirén, 1883).

Material examined. Over 200 specimens, size range 70 setigers, 7 mm long, 0.3 mm wide to 70 setigers, 9 mm long, 0.4 mm wide (entire worms).

Holotype: entire specimen, 70 setigers, 13 mm long, 0.3 mm wide, NMV F53898. Hobsons Bay and Yarra River, Port Phillip Bay, Victoria, 37°50'S, 144°53'E, about 8 m, Smith-McIntyre Grab, 9–11 Mar 1971, G. Poore et al., Marine Studies Group (PPBES Stn 131).

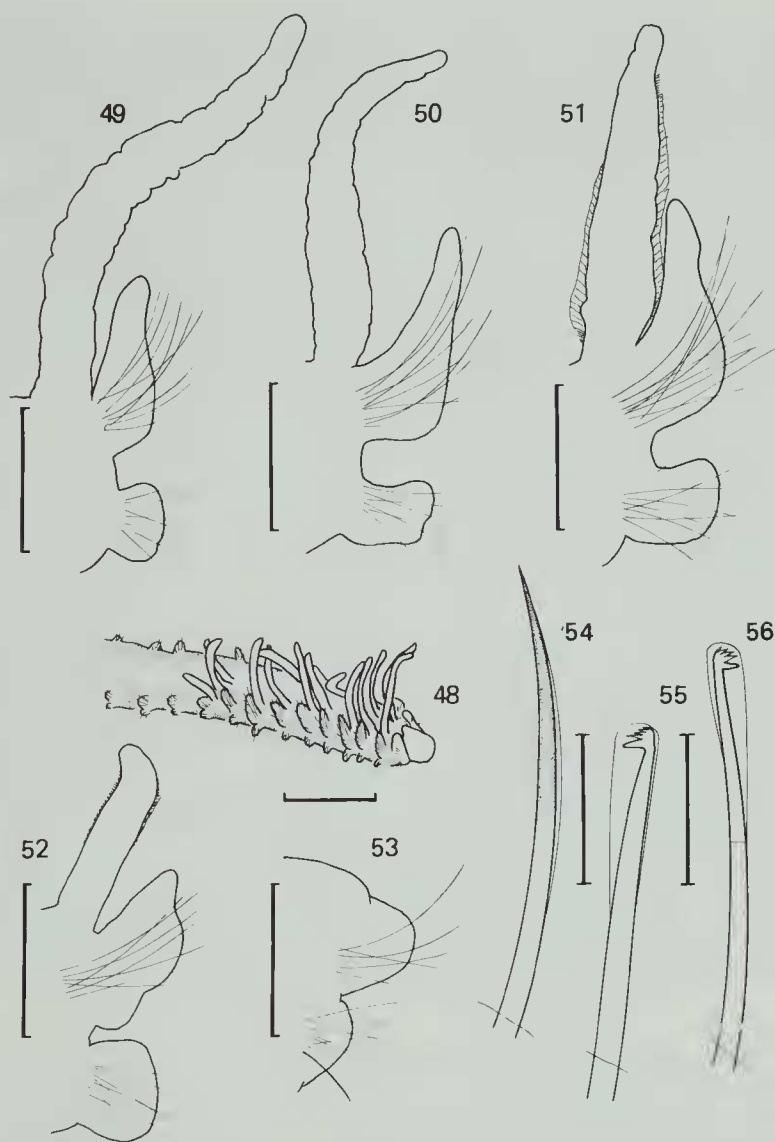
Paratypes: Hobsons Bay and Yarra River, type locality, NMV F53899–53902, 20 paratypes; AM W203953, 10 paratypes; NMW.Z.1989.116.6, 10 paratypes; USNM 122750, 10 paratypes.

Other material: Western Australia: Nornalup, J. Shaw, NMV F53903, 1 specimen.

Victoria: PPBES Stn 128, NMV G3155, 9 specimens; PPBES Stn 134, NMV G3197, 109; PPBES Stn 952, NMV G3151, 36; Gippsland Lakes, Paynesville, 2 m, sand, J.D. Kudenov, 7 Aug 1975, NMV G3145, 20.

Comparative material of other taxa. *Prionospio multi-branchiata*.—Mackie, 1984 (not Berkeley, 1927): Scotland: Loch Creran (upper basin), Stn P, 25 m, mud, A.S.Y. Mackie, 14 Feb 1978, NMW Z.1985.023.19, 10 specimens.

Description. Prostomium widest at mid-point, broadly rounded anteriorly, produced posteriorly into narrow caruncle extending back to posterior margin of setiger 1 (Fig. 48). Paired nuchal organs surround caruncle. One or 2 pairs of red eyes, sometimes faint or absent. Peristomium partly fused to setiger 1, forming low lateral wings. Setiger 1 with small but distinct notopodial and neuropodial lobes, both with setae. Notopodia asymmetrical lanceolate lobes, largest on setigers 2–7, reducing to low rounded lobes by about setiger 12, then reducing further so as to be barely visible by setiger 20. Neuropodia irregular in shape, largest over anterior setigers, reduc-



Figures 48–56. *Prionospio tatura*: 48, dorsal view, holotype NMV F53898. 49–55, paratype NMV F53899: 49, setiger 2 parapodium; 50, setiger 3 parapodium; 51, setiger 4 parapodium; 52, setiger 9 parapodium; 53, setiger 13 parapodium; 54, sabre seta, setiger 25; 55, neuropodial hooded hook, setiger 25. 56, notopodial hooded hook, setiger 57, paratype NMV F53900.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 48); 0.1 mm (Figs 49–53); 0.02 mm (Figs 54–56).

ing to low rounded lobes by setiger 12 (Figs 49–53). Six to 11 pairs of apinnate branchiae from setiger 2 (9 pairs in holotype), posterior branchiae with ciliated margins. First pair of branchiae 2–3 times as long as notopodium, branchiae of subsequent setigers decreasing in length with posterior-most (and shortest) branchial pair less than twice as long as notopodia

and about one third as long as first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Notosetae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to a single row by about setiger 15. Granulate sheathed sabre setae (Fig. 54) appear in neuropodia at setigers 9–12 (setiger 10 in holotype).

Hooded hooks with 4 pairs of small teeth above the main fang (Fig. 55) appear in neuropodia at setigers 13–17 (setiger 15 in holotype). Notopodial hooded hooks (Fig. 56), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 23–38 (setiger 33 in holotype). Pygidium with short median cirrus and pair of triangular lateral lappets.

Remarks. Among species of *Prionospio* with only apinnate branchiae (summarised by Maciolek, 1985: Table 4) *P. tatura* is most similar to *P. cirrifera* Wirén, 1883 and *P. multibranchiata* Berkeley, 1927. *Prionospio cirrifera* was redescribed by Mackie (1984) and can be distinguished from *P. tatura* (and 2 related Australian species: *P. wambiri* and *P. yuriel* spp. nov., described below) by the shorter branchiae, the longer caruncle (extending to the posterior margin of setiger 2 in *P. cirrifera*) and the presence of dorsal crests on post-branchial setigers. *Prionospio cirrifera* also differs in having acuminate ventral prolongation of the neuropodial lamellae of setiger 2. Mackie (1984) also provided a description of *P. multibranchiata* based on material from Scotland, however subsequent examination of specimens from near the type locality (Vancouver Island, Canada) indicates that *P. multibranchiata*.—Mackie, 1984 is distinct from *P. multibranchiata* Berkeley, 1927 (A.S.Y. Mackie, pers. comm.). *Prionospio multibranchiata*.—Mackie, 1984 possesses a long caruncle and dorsal crests on post-branchial setigers which distinguish this species from *P.*

tatura (and *P. wambiri* and *P. yuriel*). In addition, *P. multibranchiata*.—Mackie, 1984, the first appearance of neuropodial sabre setae and hooded hooks moves posteriorly with increasing size of the specimen; no such size related variation was observed in either *P. tatura*, *P. wambiri* or *P. yuriel*. Mackie's unpublished notes show that *P. multibranchiata* from Canada can be distinguished from all 3 Australian species on the basis of the shorter branchiae and the distribution of sabre setae and hooded hooks (A.S.Y. Mackie, pers. comm.). All southern Australian records of *P. cirrifera* examined here have been referred to *P. tatura*, *P. wambiri* and *P. yuriel*. Additional more northerly records of *Prionospio cirrifera* that are not reassessed here are Blake and Kudenov (1978), Hutchings and Rainer (1979) and Hutchings and Murray (1984) (material from New South Wales and Queensland). I have seen the Hawkesbury River material of Hutchings and Murray (1984); the specimens are in poor condition but appear to represent one or more undescribed species. Additional species might be expected to occur in northern Australia, however it is beyond the scope of this paper to treat the tropical and subtropical fauna. Such a study should in any case include more comprehensive collections from northern Australia than are currently available. It is unlikely that *Prionospio cirrifera* occurs in Australia.

Among Australian species, *P. tatura* is most similar to *P. wambiri* and *P. yuriel*. The three species can be distinguished using the characters given in Table 2.

Table 2. Comparison of three related Australian species of *Prionospio*.

Species	prostomium	branchiae	first setiger with neuropodial:	
			sabre setae	hooded hooks
<i>P. tatura</i>	widest at mid-point	longest on setiger 2, decreasing in length posteriorly	9–12	13–17
<i>P. wambiri</i>	widest close to anterior margin	longest on setiger 2, decreasing in length posteriorly	14–16	16–21
<i>P. yuriel</i>	widest at posterior-most region	longest on setigers 4–5, decreasing in length on anterior and posterior setigers	11–13	14–19

Etymology. The specific name *tatura* is derived from an Australian aboriginal word meaning "small lagoon".

Distribution. Estuarine localities in Western Australia and Victoria.

***Prinospio wambiri* sp. nov.**

Figures 57–65

Minuspio cirrifera.—Hutchings and Murray, 1984: 59 (in part; not Wirén, 1883).

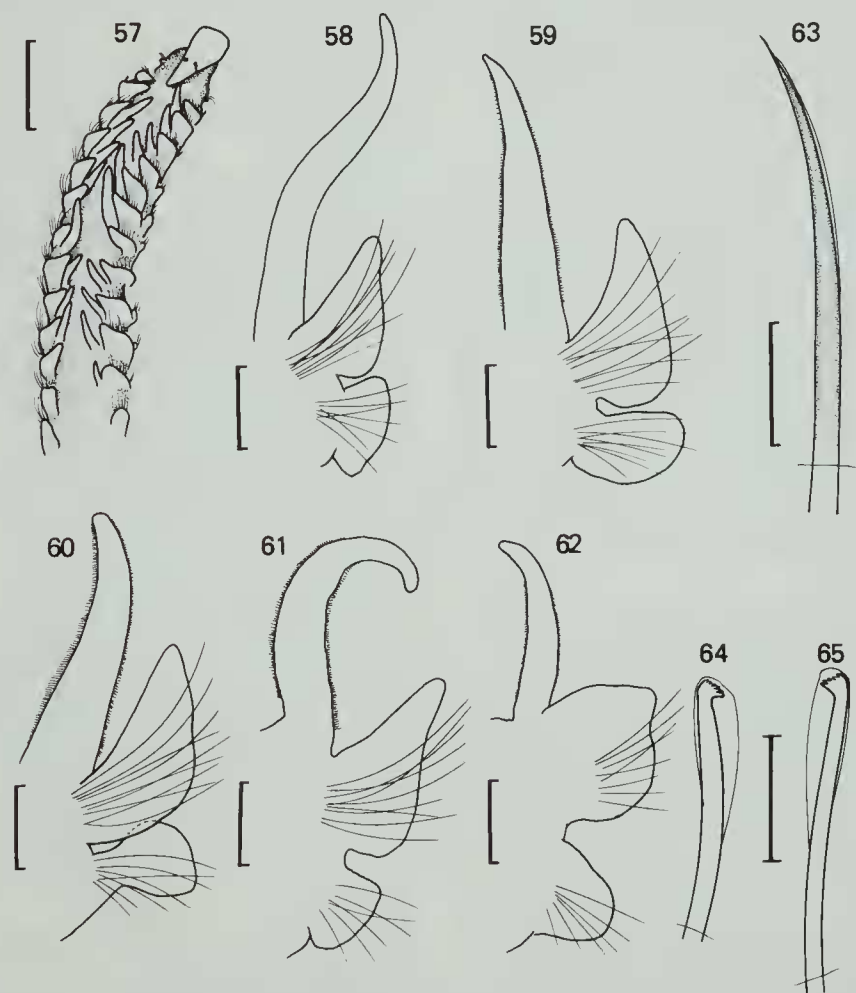
Material examined. 26 specimens, size range 35 setigers, 3.5 mm long, 0.3 mm wide (anterior fragment) to

81 setigers, 18 mm long, 0.9 mm wide (entire specimen).

Holotype: entire specimen, 88 setigers, 15 mm long, 0.8 mm wide, NMV F53904. Tasmania, Woodbridge, 43°9.5'S, 147°14.0'E, intertidal, fine muddy sand, hand spade, 28 Apr 1985, R. Wilson (Stn TAS 44).

Paratypes: Tasmania, type locality, NMV F53905–53906, 2 paratypes; AM W203954, 2 paratypes; USNM 122751, 2 paratypes. Tasmania, Dover Jetty, 43°19.0'S, 147°1.0'E, 1.5 m, muddy fine sand and *Zostera*, SCUBA airlift, 27 Apr 1985, R. Wilson (Stn TAS 40), NMW.Z.1989.116.7, 5 paratypes; NMV F53907, 26 paratypes.

Other material: Tasmania: Stn TAS 2, NMV F53908, 4 specimens; Stn TAS 4, NMV F53909, 2; Stn



Figures 57–65. *Prinospio wambiri*: 57, dorsal view, holotype NMV F53904. 58–65, paratype NMV F53905: 58, setiger 2 parapodium; 59, setiger 3 parapodium; 60, setiger 4 parapodium; 61, setiger 9 parapodium; 62, setiger 13 parapodium; 63, sabre seta, setiger 26; 64, neuropodial hooded hook, setiger 26; 65, notopodial hooded hook, setiger 60.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 57); 0.1 mm (Figs 58–62); 0.02 mm (Figs 63–65).

TAS 11, NMV F53910, 1; Stn TAS 41, NMV F53911, 3; Stn TAS 47, NMV F53912, 1; Stn TAS 48, NMV F53913, 8; Stn TAS 51, NMV F53914, 3.

Bass Strait: Stn BSS-S 109, NMV F50400, 1; Stn BSS-S 117, NMV F50401, 1; Stn BSS-S 179, NMV F50402, 1; Stn BSS-S 212, NMV F50403-50404, 2.

New South Wales: Jervis Bay, 25 Apr 1972, New South Wales Fisheries, AM W194090, 1 specimen (part of material of Hutchings and Murray, 1984).

Description. Prostomium widest close to anterior margin, narrower in mid-region and produced posteriorly into narrow caruncle which extends back to posterior margin of setiger 1 (Fig. 57). Paired nuchal organs surround caruncle. One pair of irregularly-shaped red eye spots present, sometimes with additional 1 or 2 pairs of smaller eye spots. Peristomium fused to setiger 1, forming low lateral wings. Setiger 1 with notosetae, neurosetae and small notopodial and neuropodial lobes. Notopodia asymmetrical lanceolate lobes, largest on setigers 2-9, reducing posteriorly to low rounded lobes, barely visible by setiger 20. Neuropodia irregular in shape, largest over setigers 2-9, reducing to low rounded lobes by setiger 20 (Figs 58-62). Neuropodia of setiger 2 with ventrally directed process. Seven to 12 pairs of apinnate branchiae from setiger 2 (9 pairs in holotype), all except anterior 1-2 pairs with ciliated margins. First pair of branchiae longest, 2-2.5 times as long as notopodia, branchiae of subsequent setigers decreasing regularly in length with posterior-most branchial pair 1.5-2 times as long as notopodial lobe and about half as long as first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Notosetae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to single rows by about setigers 15-20. Granulate limbate sabre setae (Fig. 63) appear in neuropodia at setigers 14-16 (setiger 15 in holotype). Neuropodial hooded hooks (Fig. 64) with 4 pairs of small teeth above the main fang appear at setigers 16-20 (setiger 17 in holotype). Notopodial hooded hooks (Fig. 65), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 36-50 (setiger 41 in holotype). Pygidium with short median cirrus and pair of triangular lateral lappets.

Remarks. *Prionospio wambiri* is most similar to *P. tatura* and *P. yuriei*. All three species can be distinguished using the characters given in Table 2. Further comments comparing these three Australian species with related Northern Hemisphere taxa are provided in the Remarks section of the account of *P. tatura*.

Etymology. The specific name *wambiri* is derived from an Australian aboriginal word meaning "sea coast".

Distribution. Tasmania, Bass Strait and Jervis Bay, New South Wales, from a variety of sediments, intertidal to 55 m depth.

Prionospio yuriei sp. nov.

Figures 66-74

Prionospio (Minuspio) cirrifera.—Blake and Kudenov, 1978: 222-224, Fig 25a (in part, not Wirén, 1883).

Minuspio cirrifera.—Hutchings and Turvey, 1984: 11 (not Wirén, 1883).—Hutchings and Murray, 1984: 59 (not Wirén, 1883; in part, material from Botany Bay).

Material examined. Over 1200 specimens, size range 30 setigers, 5 mm long, 0.2 mm wide (entire worm), to 34 setigers, 0.5 mm wide, 9 mm long (anterior fragment).

Holotype: anterior fragment, 43 setigers, 8 mm long, 0.3 mm wide, NMV F53915. Victoria, Port Phillip Bay, 9 km E of Portarlington, 38°7.0'S, 144°44.7'E, 4 m, sand, venturi sampler, 16 Nov 1971, Fisheries and Wildlife Department (PPBES Stn 945) (part of material of Blake and Kudenov, 1978).

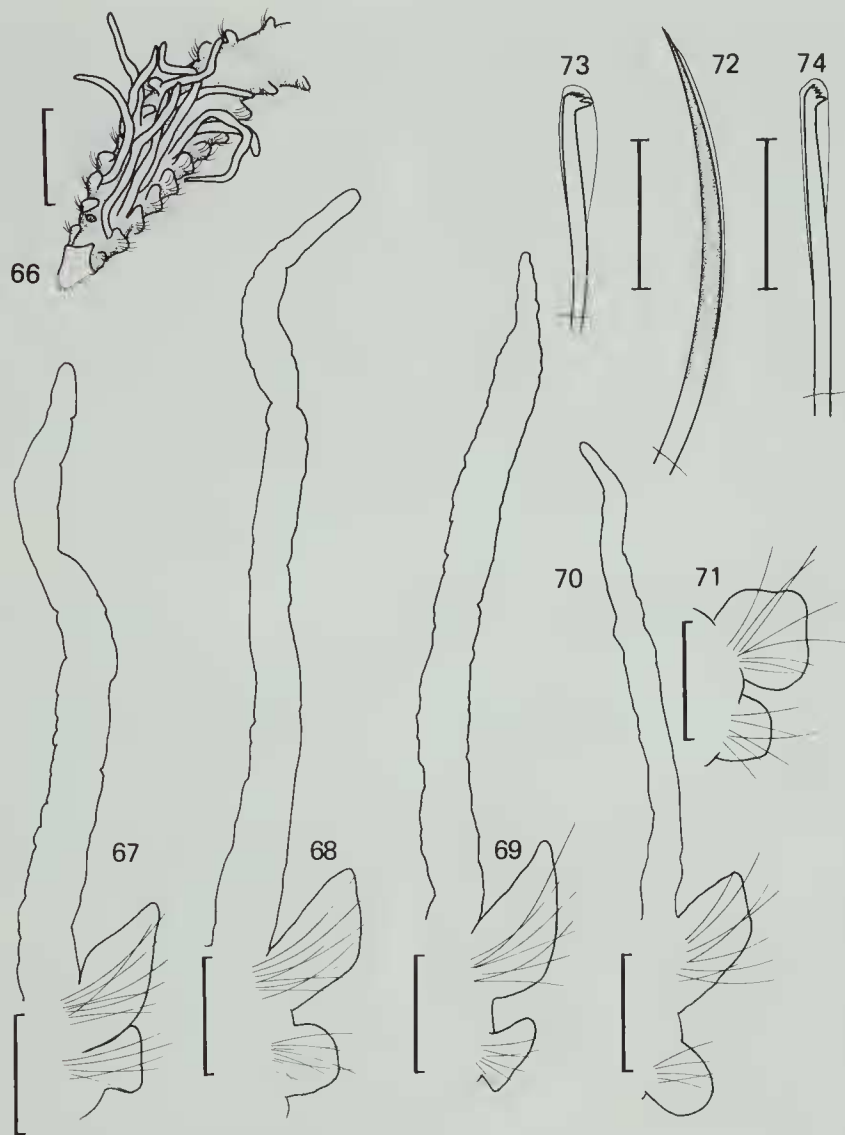
Paratypes: Victoria, Port Phillip Bay, type locality, NMV F53916-53918, NMV G3150, 41 paratypes; AM W203955, 4 paratypes; NMW.Z.1989.116.8, 6 paratypes; USNM 122752, 6 paratypes (part of material of Blake and Kudenov, 1978).

Other material: South Australia: Streaky Bay, HT Stn 02B, AM W19302, 1 specimen (material of Hutchings and Turvey, 1984). Bass Strait: Stn BSS-G 49, NMV F50405, 1 specimen; Stn BSS-G 197, NMV F50406, 1.

Victoria: Port Phillip Bay: PPBES Stn 128, NMV G3155, over 1000 specimens; PPBES Stn 131, NMV G3156, 1; PPBES Stn 901, NMV G3146, 93 specimens; PPBES Stn 913, NMV G3147, 2; PPBES Stn 921, NMV G3148, 9; PPBES Stn 932, NMV G3149, 3; PPBES Stn 952, NMV F53919, 5; PPBES Stn 962, NMV G3152, 1; PPBES Stn 978, NMV G3153; PPBES Stn 983, NMV G3154, 4 (part of material of Blake and Kudenov, 1978).

New South Wales: Towra Point, Botany Bay, *Zostera*, 2 m, 17 Apr 1973, New South Wales Fisheries, AM W16907-16910, 12 specimens (part of material of Hutchings and Murray, 1984).

Description. Prostomium narrow and elongate anteriorly, broadest at posterior-most third, produced posteriorly into narrow caruncle extending to posterior margin of setiger 1 (Fig. 66). Paired nuchal organs surround the caruncle. One pair of faint red eye spots present in some specimens posterior to widest part of prostomium. Peristomium separate from setiger 1, forming low lateral wings. Setiger 1 with both



Figures 66–74. *Prinospio yuriei*: 66–73, paratype NMV F53916: 66, dorsal view; 67, setiger 2 parapodium; 68, setiger 3 parapodium; 69, setiger 4 parapodium; 70, setiger 9 parapodium; 71, setiger 13 parapodium; 72, sabre seta, setiger 25; 73, neuropodial hooded hook, setiger 25; 74, notopodial hooded hook, setiger 43, holotype NMV F53915.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Fig. 66); 0.1 mm (Figs 67–71); 0.02 mm (Figs 72–74).

notosetae and neurosetae, without obvious parapodial lobes. Notopodia asymmetrical lanceolate lobes, largest on setigers 2–5, reducing posteriorly to symmetrical rounded lobes with median protuberances by setiger 12. Notopodia further reduced to low circular lobes by setiger 20, barely visible by setiger 30. Neuropodia largest on setigers 2–4; setigers 2 and 4 with conspicuous dorsally directed lobes (Figs 67, 69).

Neuropodia of setigers 3, 5 and subsequent setigers symmetrical semicircular lobes reducing in size posteriorly to low lobes by setiger 12, barely visible by setiger 30 (Figs 68, 70, 71). Six to 9 pairs of apinnate branchiae from setiger 2 (6 pairs in holotype), basal region of branchiae with ciliated margins. Branchiae of setiger 2 about 4 times notopodial length, increasing in length to maximum at setigers 4–5 where branchiae meas-

ure up to 1.5 times length of first pair of branchiae. Branchiae then decrease in length posteriorly, last pair equal to or slightly shorter than first pair of branchiae. Dorsal crests and interparapodial pouches absent.

Notosetae and neurosetae all granulate limbate capillaries in 2 rows anteriorly, reducing to single rows by about setigers 15–20. Granulate limbate sabre setae (Fig. 72) appear in neuropodia at setigers 11–13 (setiger 11 in holotype). Hooded hooks, with 4–5 pairs of small teeth above main fang (Fig. 73), appear in neuropodia at setigers 14–19 (setiger 17 in holotype). Notopodial hooded hooks (Fig. 74), with longer shafts but otherwise identical to neuropodial hooded hooks, appear at setigers 34–42 (setiger 42 in holotype). Pygidium with long median cirrus and pair of very small lateral lappets.

Remarks. *Prionospio yuriel* is most likely to be confused with the two Australian species described above, *P. tatura* and *P. wambiri*; all three species can be distinguished using the characters given in Table 2. Further comments comparing these three Australian species with related Northern Hemisphere taxa are provided in the *Remarks* section of the account of *P. tatura*.

I have examined Hutchings and Murray's (1984) material identified as *P. cirrifera*. The specimens from Botany Bay, New South Wales are referable to *P. yuriel*. The specimens from the Hawkesbury River, New South Wales are generally in too poor condition to be confident of their identity, however the distribution of sabre setae and hooded hooks indicates that *P. yuriel* and another (possibly undescribed) species may be present in the Hawkesbury.

Etymology. The specific name *yuriel* is derived from an Australian aboriginal word meaning "coastal bay".

Distribution. Inshore waters of South Australia, Victoria and New South Wales from a variety of soft sediments; two records from the continental shelf of Bass Strait 46 and 81 m.

Paraprionospio Caullery, 1914

Diagnosis. Prostomium elongate to spindle-shaped, lacking posterior caruncle. Peristomium

fused with achaetous first segment, forming large lateral wings enclosing prostomium. Setiger 1 well developed, distinct from preceding segment. Three pairs of branchiae, from setiger 1, all with flat flabellate or bifoliate pinules. Distinct transverse dorsal ridge between branchial bases on setiger 1. Hooded hooks with conspicuous striated secondary internal hood.

Type species. *Prionospio pinnata* Ehlers, 1901, subsequent designation by Caullery, 1914.

Remarks. Yokoyama and Tamai (1981) described 4 "forms" of *Paraprionospio* and recognised many new characters but stopped short of formally describing any new species. The type species is redescribed below from the syntypes with reference to the new characters used by Yokoyama and Tamai.

Paraprionospio coora sp. nov.

Figures 75–83

Paraprionospio pinnata.—Blake and Kudenov, 1978: 209–210 (not Ehlers, 1901).

Material examined. 46 specimens, size range 48 setigers, 8 mm long, 0.4 mm wide (entire specimen) to 37 setigers, 19 mm long, 1.6 mm wide (anterior fragment).

Holotype: entire specimen, 71 setigers, 20 mm long, 0.8 mm wide at setiger 5, NMV F50424. Central Bass Strait, 90 km N of Wynyard, 40°10.9'S, 145°44.3'E, 75 m, sand-silt-clay, Smith-McIntyre Grab, 13 Nov 1981, G. Poore et al. (Stn BSS-G 157).

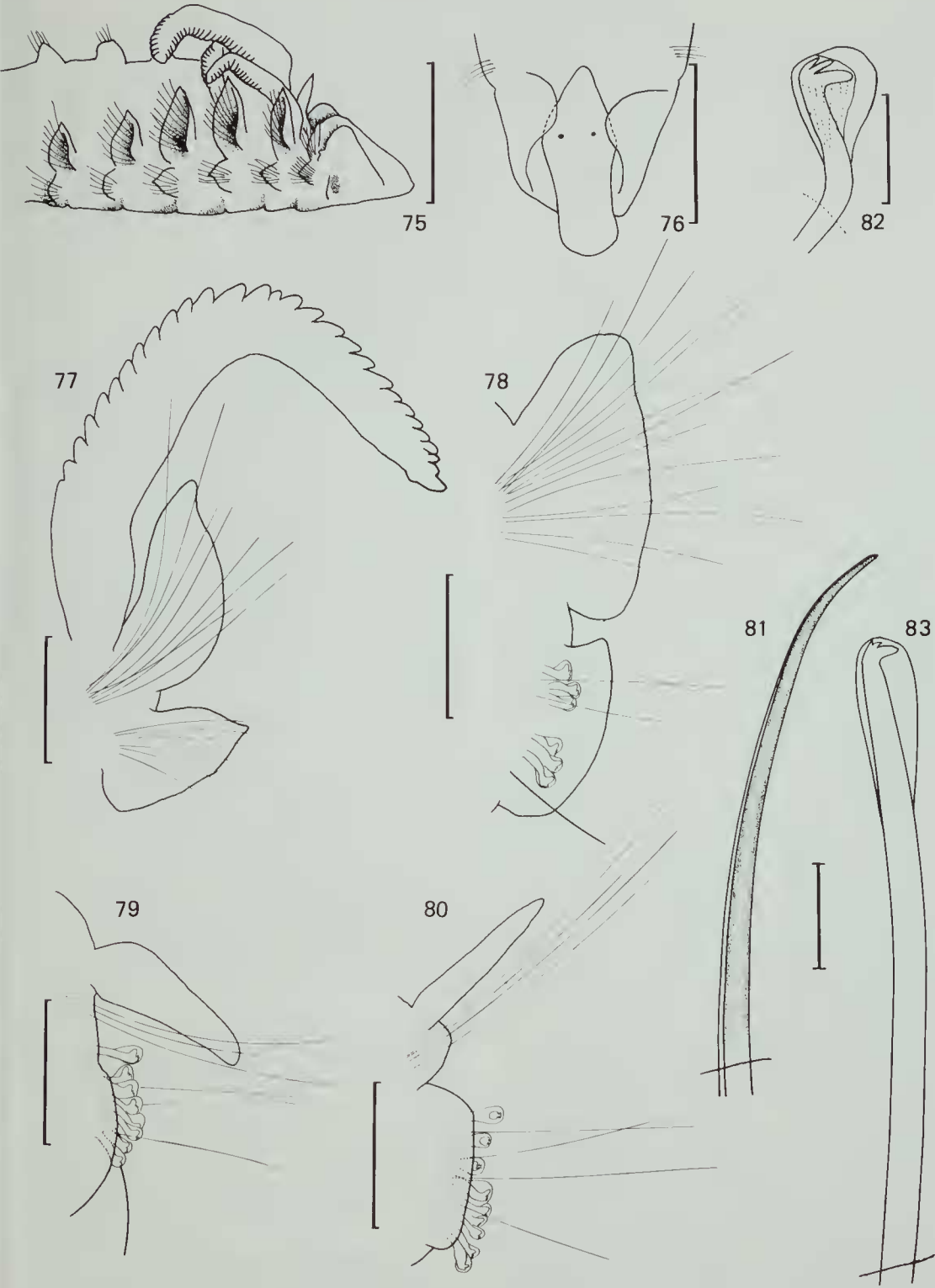
Paratypes: Central Bass Strait, type locality: NMV F50425, 1 paratype. Central Bass Strait, 90 km S of Tidal River, Wilsons Promontory, 39°49.5'S, 146°18.5'E, 82 m, sand-silt-clay, Smith-McIntyre Grab, 13 Nov 1981, G. Poore et al. (Stn BSS-G 158), AM W203956, 1 paratype. Eastern Bass Strait, 60 km E of North Point, Flinders Island, 39°44.8'S, 148°40.6'E, 124 m, clayey sand, Smith-McIntyre Grab, G. Poore et al. (Stn BSS-G 167), USNM 122753, 2 paratypes; NMW.Z.1989.116.9, 2 paratypes; AM W203957, 2 paratypes; NMV F50426–50430, 5 paratypes.

Other material: Tasmania: Stn TAS 6, NMV F50470, 1 specimen; Stn TAS 30, NMV F50476, 3; Stn TAS 32, NMV F50481, 1.

Bass Strait: Stn BSS-G 115, NMV F50431, 3 specimens; Stn BSS-S 115, NMV F50421, 7; Stn BSS-S 155, NMV F50432, 1; Stn BSS-G 159, NMV F50433, 1; Stn

Figures 75–83. *Paraprionospio coora*: 75, dorso-lateral view, paratype NMV F50426. 76–83, holotype NMV F50424: 76, dorsal view, prostomium; 77, setiger 2 parapodium, anterior view; 78, setiger 9 parapodium, anterior view; 79, setiger 24 parapodium, posterior view; 80, setiger 45 parapodium, posterior view; 81, sabre seta, setiger 13; 82, neuropodial hooded hook, setiger 13; 83, notopodial hooded hook, setiger 56.

Scale bars represent: 2.0 mm (Fig. 75); 0.5 mm (Figs 76, 78–80); 0.2 mm (Fig. 77); 0.02 mm (Figs 81–83).



BSS-S 159, NMV F50434, 1; Stn BSS-G 165, NMV F50435, 2; BSS-S 167, NMV F50436, 3; Stn BSS-G 168, NMV F50437, 1; Stn BSS-G 169, NMV F50438, F50439, 2; Stn BSS-S 175, NMV F50440, 1; Stn BSS-S 209, NMV F50441, 1.

New South Wales: Stockton Bight, 6-9 m, pipe dredge, 9 Jul 1970, N. Ruello, AM W4410, 2 specimens; off Malabar, SBS Stn CA5, 28 m, 22 May 1972, AM W6501, 2; off Malabar, SBS Stn B3 S1, AM W6502, 1 (material of Blake and Kudenov, 1978).

Description. Prostomium rounded anteriorly, spindle shaped, widest at level of eyes, extending posteriorly as low raised ridge almost to setiger 1 (Fig. 76). Two pairs of red to black eyes, anterior pair more widely separated and partly hidden beneath peristomial wings (a few specimens with only 1 pair of eyes or none). Palps ventrally grooved and with basal sheath (palps lost from holotype and many other specimens). Peristomium extending dorsally as pair of lateral wings partly enclosing the prostomium (Fig. 75). Most specimens with orange-brown pigmented patch on each peristomial wing; patch absent in holotype and several other specimens. Posterior margin of each peristomial wing with a small papilla. Muscular gizzard visible between about setigers 6-9 (between setigers 7-8 on holotype). Branchiae on setigers 1-3, first pair usually the largest (many specimens with one or more branchiae missing). First pair of branchiae joined basally by prominent dorsal crest and with several triangular lamellae basally on anterior surfaces. Dorsal crests otherwise absent. Branchiae otherwise bare anteriorly and basally, with closely packed lamellar plates enclosing lateral and posterior surfaces. Branchial lamellae consist of few bifoliate plates basally; thereafter all lamellae flabellate and continue to tip of branchiae. Some small specimens, and specimens with apparently regenerating branchiae, with bifoliate lamellae over all or most branchiae; with flabellate lamellae, if present, restricted to extreme distal portion. No slender filament at base of third pair of branchiae. Notopodia anteriorly elongate triangular lobes, longest on setigers 2-4, folded dorsally over the notosetae. Neuropodia of setigers 1-5 sub-ovoid acuminate lobes (Fig. 77). Low presetal ridges in notopodia of about setigers 1-14 and in neuropodia of about setigers 1-8. Notopodia and neuropodia reducing in size posteriorly, notopodia remaining dorsally acuminate throughout, becoming elongate subulate by about setiger 20, then cirriform from about setiger 35. Neuropodia becoming rounded posteriorly, reducing to low postsetal ridges by about setiger 12 (Figs 78-80).

Anterior notosetae and neurosetae all faintly granulate, unilimbate and bilimbate capillaries. Hooded hooks, one or two granulate unilimbate sabre setae and smooth nonlimbate capillaries appear in neuropodia from setiger 9. Many sabre setae with sharp bend near tip (Fig. 81). Smooth nonlimbate capillaries completely replace granulate limbate capillary neurosetae by about setiger 13. Granulate limbate capillary notosetae persist for several setigers more than in neuropodia but replaced by smooth nonlimbate capillaries by about setiger 24. All neuropodial hooded hooks with 2 pairs of teeth above main fang and distinctly striate secondary internal hoods (Fig. 82). Notopodial hooded hooks, with long straight shafts (Fig. 83), appear at setigers 38-41 (setiger 41 in holotype). Interparapodial pouches in most specimens, appearing between setigers 8/9 for variable number of setigers: to about setiger 13/14 on specimens less than 0.9 mm wide (including parapodia) or to about setiger 20/21 in larger specimens (up to 1.6 mm wide) and to setiger 17/18 in holotype. Dorsum of setigers 13-18 with transverse series of about 13-15 lighter coloured slightly raised ridges, 2 or 3 ridges per setiger. Dorsum otherwise smooth and without transparent areas of cuticle. No ventral bilobed flap on setiger 8. Pygidium with long median cirrus and pair of lateral cirri which may be extremely fine and difficult to see in some specimens.

Remarks. *Paraprionospio coora* sp. nov. appears to be very close to *Paraprionospio* Form C1 described by Yokoyama and Tamai (1981) from Japan, but has hooded hooks with two rather than three pairs of apical teeth. *Paraprionospio coora* also has a series of transverse dorsal ridges over setigers 13-15; Yokoyama and Tamai made no mention of this character but noted that "The anterior segments are faintly annulated and bear two ciliated bands on the dorsum."

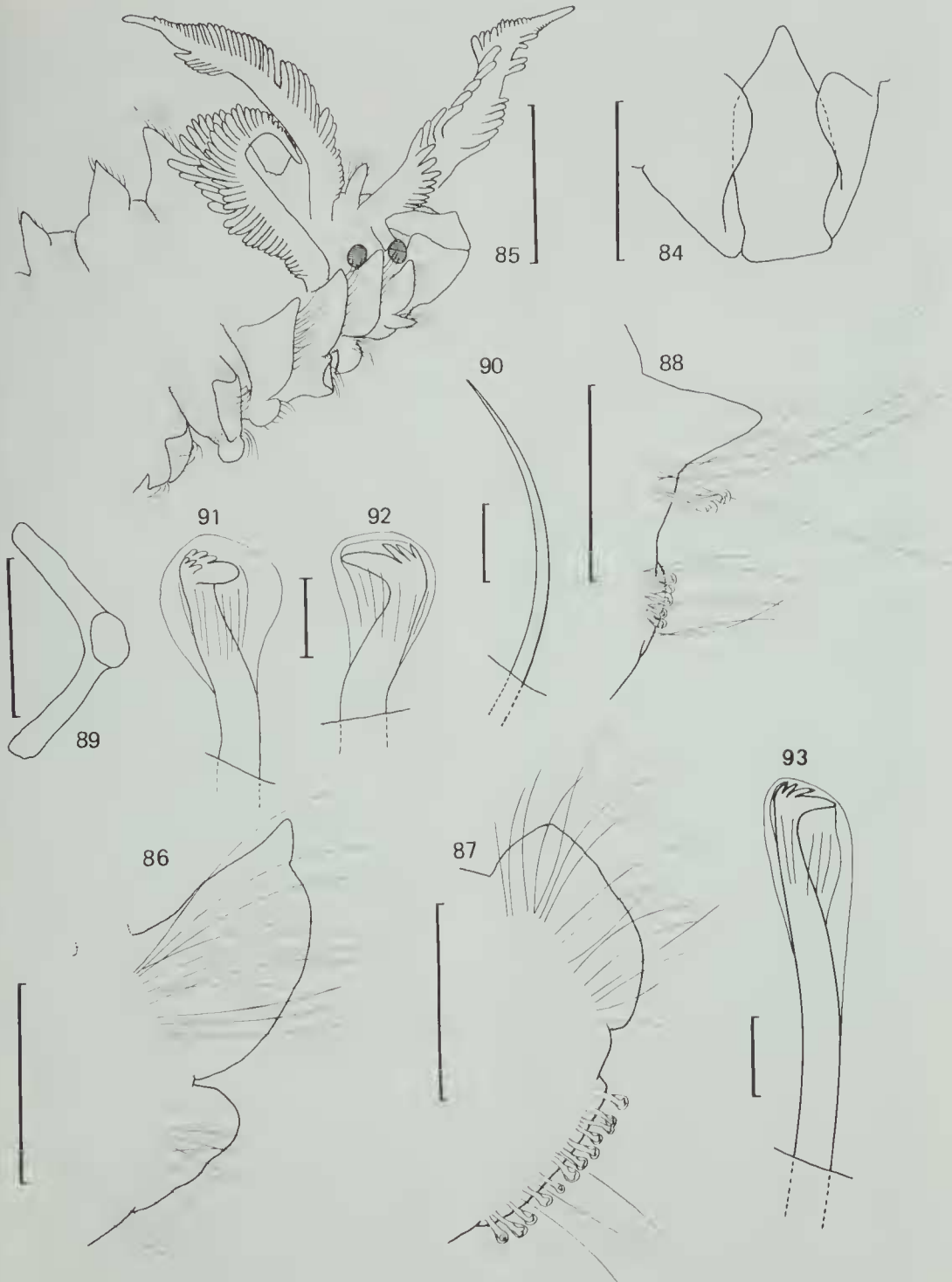
Etymology. The specific name *coora* is not meant to be descriptive; it is derived from an Australian aboriginal word meaning "blue gum tree".

Distribution. Known from Tasmania, central and eastern Bass Strait, and from the continental shelf off Sydney, New South Wales. Collected from a variety of sediment types, 6 to 124 m.

***Paraprionospio pinnata* (Ehlers, 1901)**

Figures 84-93

Prionospio pinnata Ehlers, 1901: 163-164.



Figures 84–93. *Paraprionospio pinnata*: 84–89, lectotype HZM 5814: 84, dorsal view, prostomium; 85, dorso-lateral view; 86, setiger 2 parapodium; 87, setiger 9 parapodium; 88, setiger 33 parapodium; 89, median branchial lamella; 90, sabre seta, setiger 15, paralectotype HZM 5814. 91–93, lectotype: 91, neuropodial hooded hook, setiger 9, oblique view; 92, neuropodial hooded hook, setiger 33, lateral view; 93, notopodial hooded hook, setiger 33, lateral view.

All parapodia figured in anterior view. Scale bars represent: 0.5 mm (Figs 84, 86–88); 1.0 mm (Figs 85, 89); 0.1 mm (Fig. 90); 0.02 mm (Figs 91–93).

Material examined. Chile: Talcahuano Talcañaño, 5 fathoms [9.5 m], 4 May 1893, W. Michaelsen, HZM V5814, 5 syntypes, consisting of 5 anterior fragments and 7 middle and posterior fragments. Size range of anterior fragments: 24 setigers, 10 mm long, 2.0 mm maximum width (at setiger 5, including parapodia) to 35 setigers, 16 mm long, 2.0 mm wide.

Redescription. The following redescription relates to the lectotype, designated here, consisting of the longest anterior fragment: 35 setigers, 16 mm long, 2.0 mm wide, a gravid female with many irregular eggs about 120 μ m across the largest dimension. Any variation found in the 4 paralectotypes is given in brackets. Colour in alcohol pale yellow with no obvious patterns or markings. Body widest at setiger 5, anterior 10 setigers dorsoventrally flattened and ovoid in cross-section, thereafter roughly circular. Muscular gizzard faintly visible in one paralectotype, between about setigers 6–9. Prostomium truncate to slightly rounded anteriorly, projecting slightly beyond peristomium, continuing as narrow caruncle back to setiger 1 (Fig. 84). No eyes visible. Peristomium enclosing prostomium, with pair of prominent lateral wings without marginal papillae (Fig. 85). Palps missing from all specimens but 2 detached palps present in the vial; these are grooved on one surface and have a sheath enclosing the basal third to half of the palp. Setiger 1 with prominent dorsal crest at base of first pair of branchiae. Lectotype with single branchia intact on each of setigers 1–3 (other material with various combinations of branchiae intact but all specimens evidently originally possessed one pair of branchiae on each of setigers 1–3). Each pair of branchiae of approximately equal length, with densely packed bifoliate lamellae (Fig. 89) over most of the length of the branchiae, decreasing slightly in size distally, branchial shaft bare anteriorly and basally. First pair of branchiae without anterior basal accessory lamellae. Filament absent from base of third pair of branchiae. Notopodia anteriorly elongate triangular lobes, longest over setigers 2–4, reducing quickly in size posteriorly and becoming low rounded lobes back to about setiger 22, thereafter becoming lanceolate back to at least setiger 35. Neuropodia of setiger 1 lanceolate, becoming rounded and reduced over setigers 2–10; reduced to insignificant ridge by about setiger 22 (Figs 86–88). (Posterior fragments with lanceolate notopodial lobes and virtually invisible neuropodial ridges.)

Notosetae and neurosetae anteriorly bilimbate capillaries, faintly granulate over the distal third, faintly striate basally. Capillaries chang-

ing to smooth nonlimbate capillaries between about setigers 10 and 15. Neuropodial hooded hooks, with 3 pairs of apical teeth above main fang and striate internal hood (Figs 91, 92), appear at setiger 9; notopodial hooded hooks (Fig. 93) appearing by about setiger 33. Sabre setae apparently broken or missing in lectotype and 3 paralectotypes; 2 sabre setae from single paralectotype (Fig. 90) long curved and granulate but without wings. First appearance of sabre setae could not be determined. Body without dorsal crests interparapodial pouches. Ventral bilobed flap on setiger 8 absent. Semi-transparent patches of dorsal cuticle on about setigers 21–35. Shallow ventral depression running longitudinally over anterior 20 setigers, becoming a deep ventral groove from about setiger 22 and posteriorly (deep groove continuing to pygidium in all posterior fragments). Four posterior fragments with intact pygidia, apparently having only single narrow cirri; no lateral cirri could be found.

Remarks. The above description was framed with particular respect to the new characters used by Yokoyama and Tamai (1981) in describing four new forms of *Paraprionospio* from Japan. Each of the new forms from Japan is distinct from *P. pinnata*. Form A of Yokoyama and Tamai is most similar to *P. pinnata*, but differs in the presence of a papilla on the posterior margins of the peristomial wings, a filament at the base of the third branchia, transverse dorsal crests on setigers 21–35 and lateral anal cirri. All of the above characters are absent in *P. pinnata*. Maciolek (1985) provided many references to *P. pinnata* and suggested a wide distribution, however her brief description made no mention of the new characters recognised by Yokoyama and Tamai and may not be synonymous with *P. pinnata*.

Distribution. The type locality is Chile. Reported to be cosmopolitan (e.g. Maciolek, 1985) but all records require confirmation.

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References

- Augener, H., 1914. Polychaeta Sedentaria. *Fauna Südwest-Australiens* 5: 1-170.
- Augener, H., 1918. Polychaeta. *Beiträge zur Kenntnis der Meeresfauna West-Afrikas* 2(2): 67-625.
- Augener, H., 1923. Papers from Dr. Th. Mortensen's Pacific Expedition 1914-1916. No. 14. Polychaeta 1. Polychaeten von den Auckland- und Campbell-Inseln. *Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i København* 75: 1-115.
- Berkeley, E., 1927. Polychaetous annelids from the Nanaimo district. 3. Leodocidae to Spionidae. *Contributions to Canadian Biology and Fisheries, Ottawa, n.s.* 3: 405-420.
- Blake, J.A., 1983. Polychaetes of the family Spionidae from South America, Antarctica, and adjacent seas and islands. *Antarctic Research Series* 39: 205-287.
- Blake, J.A., and Kudenov, J.D., 1978. The Spionidae (Polychaeta) from southeastern Australia and adjacent areas with a revision of the genera. *Memoirs of the National Museum of Victoria* 39: 171-280.
- Caullery, M., 1914. Sur les polychètes du genre *Prionospio* Malmgr. *Bulletin de la Société Zoologique de France* 39: 355-361.
- Claparède, E., 1870. Les Annélides Chétopodes du Golfe de Naples. *Seconde partie. Mémoires de la Société de physique et d'Histoire Naturelle de Genève* 20: 1-225, 31 pls, 365-542, 14 pls.
- Day, J.H., 1961. The polychaet fauna of South Africa. Part 6. Sedentary species dredged off Cape coasts with a few new records from the shore. *Zoological Journal of the Linnean Society* 44: 463-560.
- Ehlers, E., 1901. Die Polychaeten des magellanischen und chilenischen Strandes. Ein faunistischer Versuch. *Festschrift zur Feier des Hundertfünfzigjährigen Bestehens der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Abhandlungen Mathematisch-Physik.*
- Fauchald, K., 1977. The Polychaete Worms. Definitions and keys to the orders, families and genera. *Natural History Museum of Los Angeles County, Science Series* 28: 1-188.
- Fauvel, P., 1929. Polychètes nouvelles du Golfe de Manaar (Inde). *Bulletin de la Société Zoologique de France* 54: 180-186.
- Foster, N.M., 1969. New species of spionids (Polychaeta) from the Gulf of Mexico and Caribbean Sea with a partial revision of the genus *Prionospio*. *Proceedings of the Biological Society of Washington* 82: 381-400.
- Foster, N.M., 1971. Spionidac (Polychaeta) of the Gulf of Mexico and the Caribbean Sea. *Studies on the Fauna of Curaçao and other Caribbean Islands* 36: 1-183.
- Hartmann-Schröder, G., 1979. In Hartmann-Schröder, G. and Hartmann, G. 1979. Zur Kenntnis des Eulittorals der australischen Küsten unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Teil 2. Die Polychaeten der tropischen Nordwestküste Australiens (zwischen Derby im Norden und Port Hedland im Süden). *Mitteilungen aus dem Zoologischen Institut und Zoologische Museum der Universität Hamburg* 76: 75-218, pl. 1.
- Hartmann-Schröder, G., 1981. In Hartmann-Schröder, G. and Hartmann, G. 1981. Zur Kenntnis des Eulittorals der australischen Küsten unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Teil 6. Die Polychaeten der tropisch-subtropischen Westküste Australiens (zwischen Exmouth im Norden und Cervantes im Süden). *Mitteilungen aus dem Zoologischen Institut und Zoologische Museum der Universität Hamburg* 78: 19-96.
- Hartmann-Schröder, G., 1982. In Hartmann-Schröder, G. and Hartmann, G. 1982. Zur Kenntnis des Eulittorals der australischen Küsten unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Teil 8. Die Polychaeten der subtropische-antiborealen Westküste Australiens (zwischen Cervantes im Norden und Cape Naturaliste im Süden). *Mitteilungen aus dem Zoologischen Institut und Zoologische Museum der Universität Hamburg* 79: 51-118, pls 1-2.
- Hartmann-Schröder, G., 1984. In Hartmann-Schröder, G. and Hartmann, G. 1984. Zur Kenntnis des Eulittorals der australischen Küsten unter besonderer Berücksichtigung der Polychaeten und Ostracoden. Teil 10. Die Polychaeten der antitorcalen Südküste Australiens (zwischen Albany im Westen und Ceduna im Osten). *Mitteilungen aus dem Zoologischen Institut und Zoologische Museum der Universität Hamburg* 81: 7-62.
- Hutchings, P.A., 1974. Polychaeta of Wallis Lake, New South Wales. *Proceedings of the Linnean Society of New South Wales* 98: 175-195.
- Hutchings, P.A. and Murray, A., 1984. Taxonomy of Polychaetes from the Hawkesbury River and the southern estuaries of New South Wales, Australia. *Records of the Australian Museum Supplement* 3: 1-118.
- Hutchings, P.A. and Rainer, S.F., 1979. The polychaete fauna of Careel Bay, Pittwater, New South Wales, Australia. *Journal of Natural History* 13: 745-796.
- Hutchings, P.A. and Turvey, S.P., 1984. The Spionidae of South Australia (Annelida: Polychaeta). *Transactions of the Royal Society of South Australia* 108: 1-20.

- Laubier, L., 1968. Contribution à la faunistique du coralligène VII. A propos de quelques Annélides Polychètes rares ou nouvelles (Chrysopetalidae, Syllidae et Spionidae). *Annales de L'Institut Océanographique* 46: 79–107.
- Maciolek, N.J., 1981a. A new genus and species of Spionidae (Annelida: Polychaeta) from the north and south Atlantic. *Proceedings of the Biological Society of Washington* 94: 228–239.
- Maciolek, N.J., 1981b. Spionidae (Annelida: Polychaeta) from the Galápagos Rift geothermal vents. *Proceedings of the Biological Society of Washington* 94: 826–837.
- Maciolek, N.J., 1985. A revision of the genus *Prionospio* Malmgren, with special emphasis on species from the Atlantic Ocean, and new records of species belonging to the genera *Apoprionospio* Foster and *Paraprionospio* Caullery (Polychaeta, Annelida, Spionidae). *Zoological Journal of the Linnean Society* 84: 325–383.
- Mackie, A.S.Y., 1984. On the identity and zoogeography of *Prionospio cirrifera* Wirén, 1883 and *Prionospio multibranchiata* Berkeley, 1927 (Polychaeta; Spionidae). Pp. 35–47 in Hutchings, P.A. (ed.) *Proceedings of the First International Polychaete Conference*. Linnean Society of New South Wales.
- Malmgren, A.J., 1867. Annulater polychaeta Spetsbergiae, Gronlandiae, Islandiae et Scandinaviae haecenus cognita. *Öfversigt af Förhandlingar Kongliga Vetenskaps-Akademiens* 24: 127–235, pls 2–15.
- Okuda, S., 1935. Some lacustrine polychaetes with a list of brackish-water polychaetes found in Japan. *Annotationes Zoologicae Japonenses* 15: 240–246.
- Pleijel, F., 1985. *Prionospio ockelmanni* sp. n. (Polychaeta: Spionidae) from the Öresund and the northern part of the Swedish west-coast. *Ophelia* 24: 177–181.
- Poore, G.C.B., 1986. Marine benthic invertebrate collections from Victorian bays and estuaries. *Marine Science Laboratories Technical Report* 58: 1–28.
- Poore, G.C.B., Rainer, S.F., Spies, R.B. and Ward, E., 1975. The Zoobenthos Program in Port Phillip Bay, 1969–1973. *Fisheries and Wildlife Technical Paper* 7: 1–78.
- Söderström, A., 1920. *Studien über die Polychaetenfamilie Spionidae*. Dissertation. Uppsala, Almqvist and Wicksells. 286 pp., 1 pl.
- Webster, H.E., 1879. Annelida Chaetopoda of the Virginian coast. *Transactions of the Albany Institute, New York* 9: 202–269, 11 pls.
- Wilson, R.S. and Poore, G.C.B., 1987. The Bass Strait Survey: biological sampling stations, 1979–1983. *Occasional Papers from the Museum of Victoria* 3: 1–14.
- Wirén, A., 1883. Chaetopoda fran Sibiriska Ishafvet och Berings Haf isnamlade under Vega-Expeditionen 1878–79. *Vega-Expeditionen-Vetenskapliga Iakttagelser* 2: 383–428.
- Yokoyama, H., and Tamai, K., 1981. Four forms of the genus *Paraprionospio* (Polychaeta: Spionidae) from Japan. *Publications of the Seto Marine Biological Laboratory* 26: 303–317.

Appendix

“TAS” station data

TAS 1, 43°11.0'S, 147°16.0'E, Tasmania, D'Entrecasteaux Channel, 2.5 km SE of Birches Bay, 10 m, no sediment retained, lip dredge, 16 Apr 1985, R.S. Wilson.

TAS 2, 43°11.0'S, 147°16.0'E, Tasmania, D'Entrecasteaux Channel, 2.5 km SE of Birches Bay, 10 m, black mud, fine shell, pipe dredge, 16 Apr 1985, R.S. Wilson.

TAS 3, 43°11.0'S, 147°16.0'E, Tasmania, D'Entrecasteaux Channel, 2.5 km SE of Birches Bay, 8 m, no sediment retained, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 4, 43°11.0'S, 147°16.0'E, Tasmania, D'Entrecasteaux Channel, 2.5 km SE of Birches Bay, 8 m, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 5, 43°10.0'S, 147°17.0'E, Tasmania, Woodbridge, 200 m W of Kinghorne Point, 27 m, fine black mud and shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 6, 43°10.0'S, 147°16.0'E, Tasmania, D'Entrecasteaux Channel, 2 km ENE of Birches Bay, 17 m, clayey mud, little fine shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 7, 43°11.0'S, 147°15.0'E, Tasmania, D'Entrecasteaux Channel, 200 m E of Birches Bay, 10 m, fine black clay, no shell, pipe dredge, 17 Apr 1985, R.S. Wilson.

TAS 8, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 1.5 m, sand and rubble, infauna, airlift, 19 Apr 1985, R.S. Wilson.

TAS 9, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 1.5 m, sand and rubble infauna, some red algae, airlift, 19 Apr 1985, R.S. Wilson.

TAS 10, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, pier epifauna, airlift, 19 Apr 1985, R.S. Wilson.

TAS 11, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, algae epifauna & rubble, airlift, 19 Apr 1985, R.S. Wilson.

TAS 12, 42°7.0'S, 145°8.0'E, Tasmania, Swansea, pier, 0.5 m, algal turf from rocks, airlift, 19 Apr 1985, R.S. Wilson.

TAS 13, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 0 m, scrapings, infauna from granite cobble, hand, 21 Apr 1985, R.S. Wilson.

- TAS 14, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 0.1 m, *Zostera* and sediment, hand, 21 Apr 1985, R.S. Wilson.
- TAS 15, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 0 m, sediment & infauna from mussels, hand, 21 Apr 1985, R.S. Wilson.
- TAS 16, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 1 m, sediment and brown algae, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 17, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 1 m, red algae and invertebrates, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 18, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 0.5 m, *Zostera* sediment, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 19, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 2 m, sediment around rocks, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 20, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 2 m, fine silicious sand, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 21, 42°7.0'S, 148°17.0'E, Tasmania, Coles Bay, near boatramp, 1 m, sediment from coralline algae, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 22, 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 15 m, sponge and bryozoan epifauna, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 23, 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 15 m, red algal turf, infauna, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 24, 41°53.0'S, 148°19.0'E, Tasmania, Bicheno, Muirs Rock, 1 km E of Bicheno, 10 m, sponge, bryozoan, algal epifauna, airlift, 21 Apr 1985, R.S. Wilson.
- TAS 25, 42°14.0'S, 148°15.0'E, Tasmania, Freycinet Peninsula, W of Weatherhead Point, 17 m, *Zostera* and algal epifauna, lip dredge, 22 Apr 1985, R.S. Wilson.
- TAS 26, 42°11.0'S, 148°15.0'E, Tasmania, Freycinet Peninsula, 200 m E of Refuge Is, Promisc Bay, 10 m, epifauna from sponge and worm clump, SCUBA, 22 Apr 1985, R.S. Wilson.
- TAS 27, 42°35.0'S, 148°2.0'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, algal and drift holdfast epifauna, trawl, 23 Apr 1985, R.S. Wilson.
- TAS 28, 42°35.0'S, 148°2.0'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, black mud, 23 Apr 1985, R.S. Wilson.
- TAS 29, 42°34.0'S, 148°6.0'E, Tasmania, Maria Island, 2 km E of Cape Boulanger, 50 m, fine bryozoa and shell, WHOI epibenthic sled, 23 Apr 1985, R.S. Wilson.
- TAS 30, 42°36.0'S, 148°10.0'E, Tasmania, Maria Island, E of Maria Island, 75 m, fine bryozoa and shell, WHOI epibenthic sled, 23 Apr 1985, R.S. Wilson.
- TAS 31, 42°37.0'S, 148°12.5'E, Tasmania, Maria Island, 5 km NE Mistaken Cape, 100 m, fine muddy bryozoa, WHOI epibenthic sled, 23 Apr 1985, R.S. Wilson.
- TAS 32, 42°33.0'S, 147°55.5'E, Tasmania, Spring Bay, 4.5 km SSE of Triabunna, 5 km NE Mistaken Cape, 15 m, black mud and some fine shell, WHOI epibenthic sled, 23 Apr 1985, R.S. Wilson.
- TAS 33, 42°35.0'S, 148°2.50'E, Tasmania, Maria Island, 500 m W of Darlington, 30 m, 23 Apr 1985, R.S. Wilson.
- TAS 34, 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, epifauna from *Zostera*, hand, 27 Apr 1985, R.S. Wilson.
- TAS 35, 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, sediment from seagrass, hand, 27 Apr 1985, R.S. Wilson.
- TAS 36, 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, epifauna from coralline algal turf, hand, 27 Apr 1985, R.S. Wilson.
- TAS 37, 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, infauna from sand and cobble, hand, 27 Apr 1985, R.S. Wilson.
- TAS 38, 43°26.0'S, 146°56.5'E, Tasmania, Southport, rock platforms SE of pier, 0.1 m, under rocks and *Galcolaria*, hand, 27 Apr 1985, R.S. Wilson.
- TAS 39, 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 3 m, sediment and algae under pier, airlift, 27 Apr 1985, R.S. Wilson.
- TAS 40, 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1.5 m, muddy fine sand under *Zostera*, airlift, 27 Apr 1985, R.S. Wilson.
- TAS 41, 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1.5 m, under rocks on fine sandy bottom, airlift, 27 Apr 1985, R.S. Wilson.
- TAS 42, 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 1 m, airlift, 27 Apr 1985, R.S. Wilson.
- TAS 43, 43°19.0'S, 147°1.0'E, Tasmania, Dover Jetty, 3 m, *Zostera* epifauna, airlift, 27 Apr 1985, R.S. Wilson.
- TAS 44, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge, 200 m N of Marine Studies Centre, 0 m, fine muddy sand, hand, 28 Apr 1985, R.S. Wilson.
- TAS 45, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge, 200 m N of Marine Studies Centre, 0.1 m, under rocks and algal epifauna, hand, 28 Apr 1985, R.S. Wilson.
- TAS 46, 43°14.0'S, 147°15.0'E, Tasmania, Gordon jetty, 2 m, fine sand from rocks and algae, airlift, 28 Apr 1985, R.S. Wilson.

TAS 47, 43°14.0'S, 147°15.0'E, Tasmania, Gordon jetty, 1.5 m, fine sand from *Zostera*, airlift, 28 Apr 1985, R.S. Wilson.

TAS 48, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, fine silt, airlift, 28 Apr 1985, R.S. Wilson.

TAS 49, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, sponge and bryozoa from pier platform, airlift, 28 Apr 1985, R.S. Wilson.

TAS 50, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 0.5 m, silty red algal turf from rocks, airlift, 28 Apr 1985, R.S. Wilson.

TAS 51, 43°9.5'S, 147°14.0'E, Tasmania, Woodbridge Jetty, 2 m, silty shell, airlift, 28 Apr 1985, R.S. Wilson.